## PORTLAND HARBOR RI/FS REMEDIAL INVESTIGATION REPORT

# APPENDIX D1.1 CONTAMINANT AND PHYSICAL PARAMETERS IN BEDDED SEDIMENT—FIGURES

**DRAFT FINAL** 

## LIST OF FIGURES

- Figure D1.1-1. Scatter Plot of PCB TEQ (ND=0) Concentrations in Surface Sediment, RM 0.8-12.2
- Figure D1.1-2. Scatter Plot of PCB TEQ (ND=0) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-3. Histogram of Mean PCB TEQ (ND=0) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-4. Box-Whisker Plot of PCB TEQ (ND=0) in Surface and Subsurface Sediment by River Reach
- Figure D1.1-5. Scatter Plot of Total DDT Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-6. Scatter Plot of Total DDT Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-7. Histogram of Mean Total DDT Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-8. Box-Whisker Plot of Total DDT in Surface and Subsurface Sediment by River Reach
- Figure D1.1-9. Scatter Plot of Total DDE Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-10. Scatter Plot of Total DDE Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-11. Histogram of Mean Total DDE Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-12. Box-Whisker Plot of Total DDE in Surface and Subsurface Sediment by River Reach
- Figure D1.1-13. Scatter Plot of Total DDD Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-14. Scatter Plot of Total DDD Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-15. Histogram of Mean Total DDD Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-16. Box-Whisker Plot of Total DDD in Surface and Subsurface Sediment by River Reach
- Figure D1.1-17. Scatter Plot of Total Carcinogenic PAH (BaPEq) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-18. Scatter Plot of Total Carcinogenic PAH (BaPEq) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-19. Histogram of Mean Total Carcinogenic PAH (BaPEq) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-20. Box-Whisker Plot of Total Carcinogenic PAH (BaPEq) in Surface and Subsurface Sediment by River Reach

- Figure D1.1-21. Scatter Plot of Low Molecular Weight PAH Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-22. Scatter Plot of Low Molecular Weight PAH Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-23. Histogram of Mean Low Molecular Weight PAH Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-24. Box-Whisker Plot of Low Molecular Weight PAH in Surface and Subsurface Sediment by River Reach
- Figure D1.1-25. Scatter Plot of High Molecular Weight PAH Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-26. Scatter Plot of High Molecular Weight PAH Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-27. Histogram of Mean High Molecular Weight PAH Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-28. Box-Whisker Plot of High Molecular Weight PAH in Surface and Subsurface Sediment by River Reach
- Figure D1.1-29. Scatter Plot of Phenanthrene Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-30. Scatter Plot of Phenanthrene Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-31. Histogram of Mean Phenanthrene Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-32. Box-Whisker Plot of Phenanthrene in Surface and Subsurface Sediment by River Reach
- Figure D1.1-33. Scatter Plot of Naphthalene Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-34. Scatter Plot of Naphthalene Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-35. Histogram of Mean Naphthalene Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-36. Box-Whisker Plot of Naphthalene in Surface and Subsurface Sediment by River Reach
- Figure D1.1-37. Scatter Plot of Benzo(a)pyrene Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-38. Scatter Plot of Benzo(a)pyrene Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-39. Histogram of Mean Benzo(a)pyrene Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-40. Box-Whisker Plot of Benzo(a)pyrene in Surface and Subsurface Sediment by River Reach

- Figure D1.1-41. Scatter Plot of Total Petroleum Hydrocarbon Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-42. Scatter Plot of Total Petroleum Hydrocarbon Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-43. Histogram of Mean Total Petroleum Hydrocarbon Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-44. Box-Whisker Plot of Total Petroleum Hydrocarbons in Surface and Subsurface Sediment by River Reach
- Figure D1.1-45. Scatter Plot of Total Petroleum Hydrocarbon (Silica Gel Method) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-46. Scatter Plot of Total Petroleum Hydrocarbon (Silica Gel Method) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-47. Histogram of Mean Total Petroleum Hydrocarbon (Silica Gel Method)
  Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-48. Box-Whisker Plot of Total Petroleum Hydrocarbons (Silica Gel Method) in Surface and Subsurface Sediment by River Reach
- Figure D1.1-49. Scatter Plot of Total Petroleum Hydrocarbon (Residual) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-50. Scatter Plot of Total Petroleum Hydrocarbon (Residual) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-51. Histogram of Mean Total Petroleum Hydrocarbon (Residual) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-52. Box-Whisker Plot of Total Petroleum Hydrocarbon (Residual) in Surface and Subsurface Sediment by River Reach
- Figure D1.1-53. Scatter Plot of Total Petroleum Hydrocarbon (Residual) (Silica Gel Method) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-54. Scatter Plot of Total Petroleum Hydrocarbon (Residual) (Silica Gel Method) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-55. Histogram of Mean Total Petroleum Hydrocarbon (Residual) (Silica Gel Method) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-56. Box-Whisker Plot of Total Petroleum Hydrocarbon (Residual) (Silica Gel Method) in Surface and Subsurface Sediment by River Reach
- Figure D1.1-57. Scatter Plot of Total Petroleum Hydrocarbon (Diesel) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-58. Scatter Plot of Total Petroleum Hydrocarbon (Diesel) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-59. Histogram of Mean Total Petroleum Hydrocarbon (Diesel) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-60. Box-Whisker Plot of Total Petroleum Hydrocarbon (Diesel) in Surface and Subsurface Sediment by River Reach

- Figure D1.1-61. Scatter Plot of Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-62. Scatter Plot of Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-63. Histogram of Mean Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-64. Box-Whisker Plot of Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method) in Surface and Subsurface Sediment by River Reach
- Figure D1.1-65. Scatter Plot of Butylbenzyl phthalate Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-66. Scatter Plot of Butylbenzyl phthalate Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-67. Histogram of Mean Butylbenzyl phthalate Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-68. Box-Whisker Plot of Butylbenzyl phthalate in Surface and Subsurface Sediment by River Reach
- Figure D1.1-69. Scatter Plot of Pentachlorophenol Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-70. Scatter Plot of Pentachlorophenol Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-71. Histogram of Mean Pentachlorophenol Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-72. Box-Whisker Plot of Pentachlorophenol in Surface and Subsurface Sediment by River Reach
- Figure D1.1-73. Scatter Plot of Hexachlorobenzene Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-74. Scatter Plot of Hexachlorobenzene Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-75. Histogram of Mean Hexachlorobenzene Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-76. Box-Whisker Plot of Hexachlorobenzene in Surface and Subsurface Sediment by River Reach
- Figure D1.1-77. Scatter Plot of gamma-Hexachlorocyclohexane (Lindane) Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-78. Scatter Plot of gamma-Hexachlorocyclohexane (Lindane) Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-79. Histogram of Mean gamma-Hexachlorocyclohexane (Lindane) Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-80. Box-Whisker Plot of gamma-Hexachlorocyclohexane (Lindane) in Surface and Subsurface Sediment by River Reach

- Figure D1.1-81. Scatter Plot of Cadmium Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-82. Scatter Plot of Cadmium Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-83. Histogram of Mean Cadmium Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-84. Box-Whisker Plot of Cadmium in Surface and Subsurface Sediment by River Reach
- Figure D1.1-85. Scatter Plot of Lead Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-86. Scatter Plot of Lead Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-87. Histogram of Mean Lead Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-88. Box-Whisker Plot of Lead in Surface and Subsurface Sediment by River Reach
- Figure D1.1-89. Scatter Plot of Mercury Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-90. Scatter Plot of Mercury Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-91. Histogram of Mean Mercury Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-92. Box-Whisker Plot of Mercury in Surface and Subsurface Sediment by River Reach
- Figure D1.1-93. Scatter Plot of Nickel Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-94. Scatter Plot of Nickel Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-95. Histogram of Mean Nickel Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-96. Box-Whisker Plot of Nickel in Surface and Subsurface Sediment by River Reach
- Figure D1.1-97. Scatter Plot of Percent Fines Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-98. Scatter Plot of Percent Fines Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-99. Histogram of Mean Percent Fines Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)
- Figure D1.1-100. Box-Whisker Plot of Percent Fines in Surface and Subsurface Sediment by River Reach
- Figure D1.1-101. Scatter Plot of Total Organic Carbon Concentrations in Surface Sediment, RM 0.8–12.2
- Figure D1.1-102. Scatter Plot of Total Organic Carbon Concentrations in Subsurface Sediment, RM 0.8–12.2
- Figure D1.1-103. Histogram of Mean Total Organic Carbon Concentration in Surface and Subsurface Sediment (RM 1.9–11.8)

Figure D1.1-104. Box-Whisker Plot of Total Organic Carbon in Surface and Subsurface Sediment by River Reach

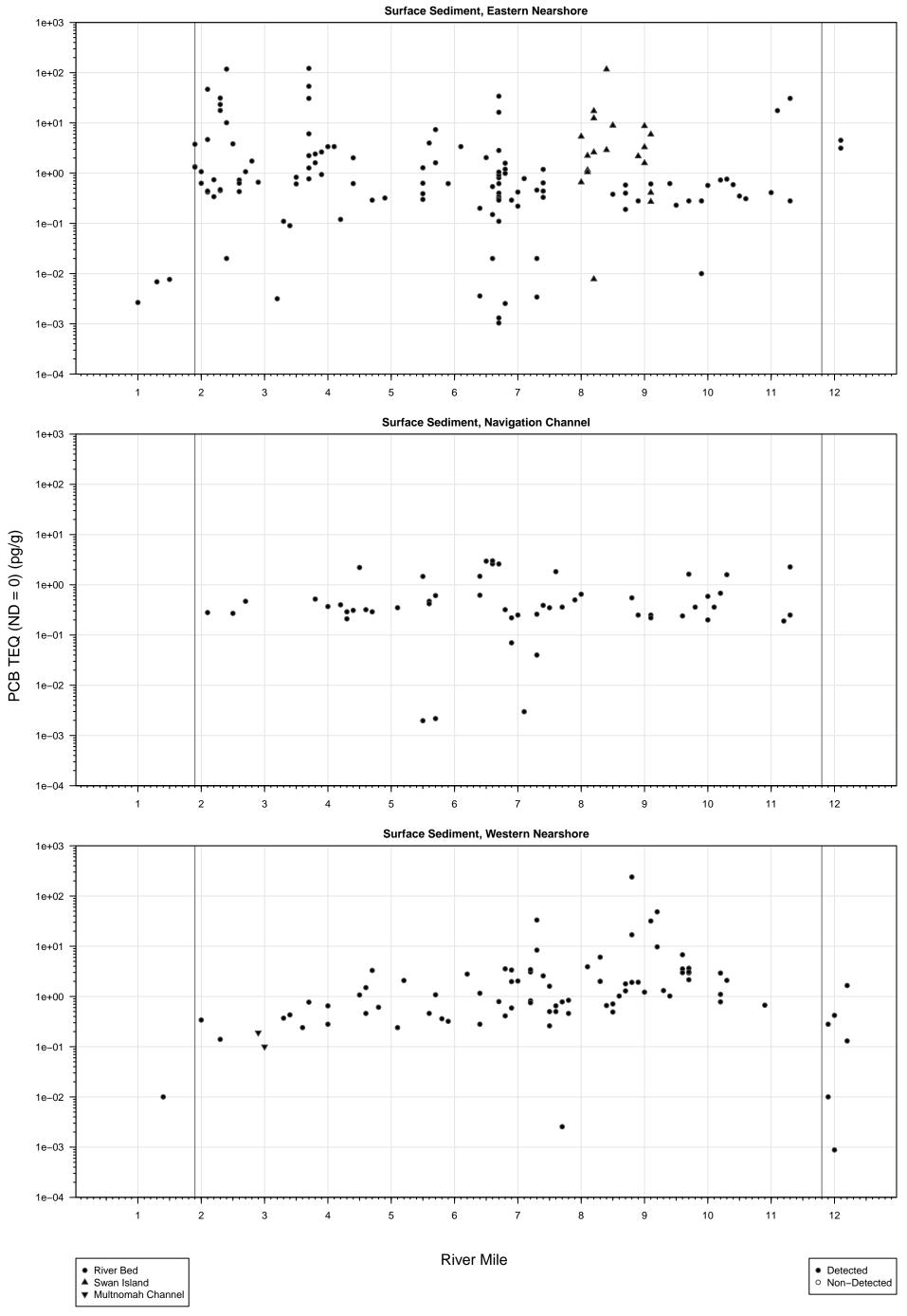


Figure D1.1–1

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Scatter Plot of PCB TEQ (ND = 0)

Concentrations in Surface Sediment, RM 0.8–12.2

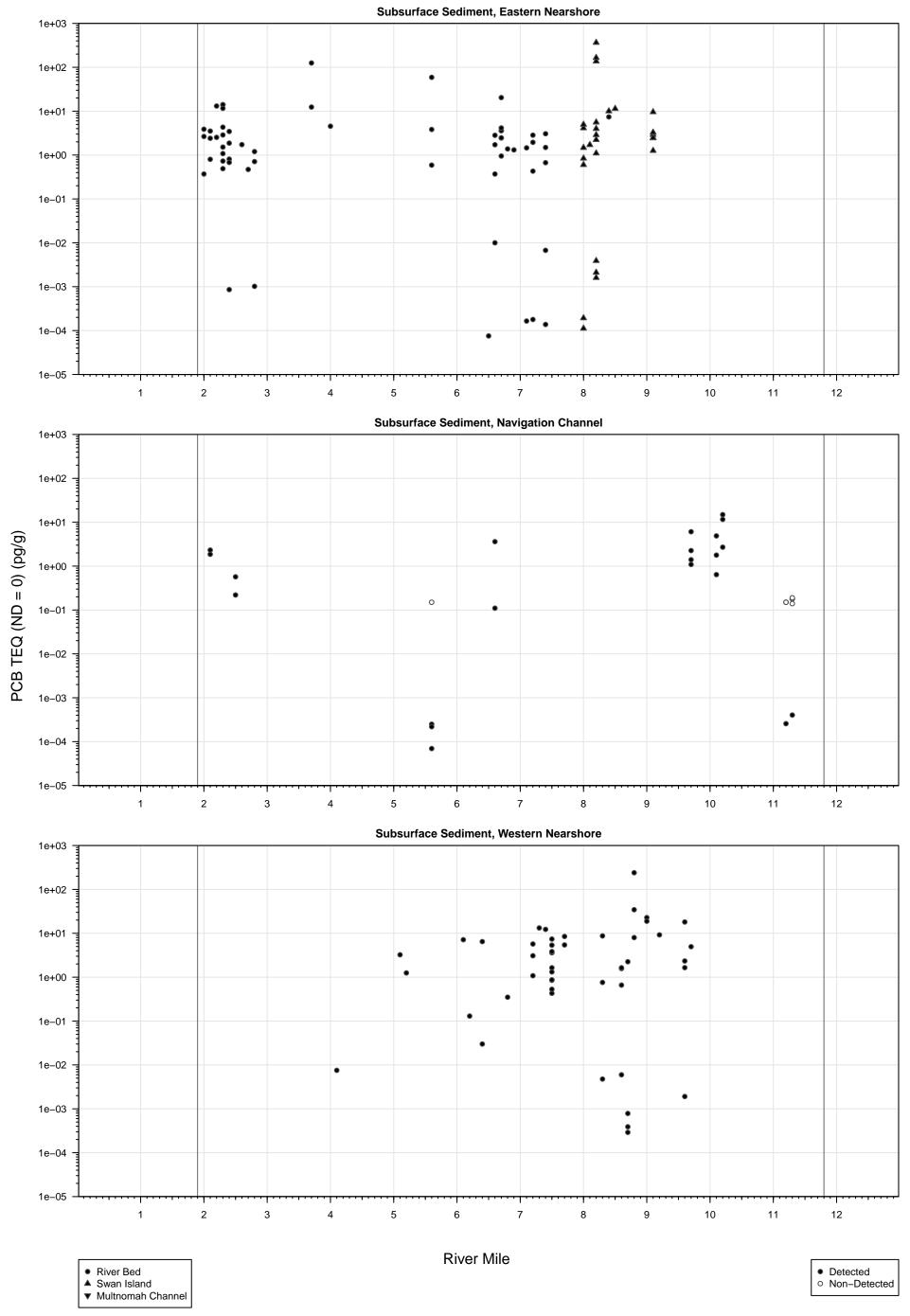
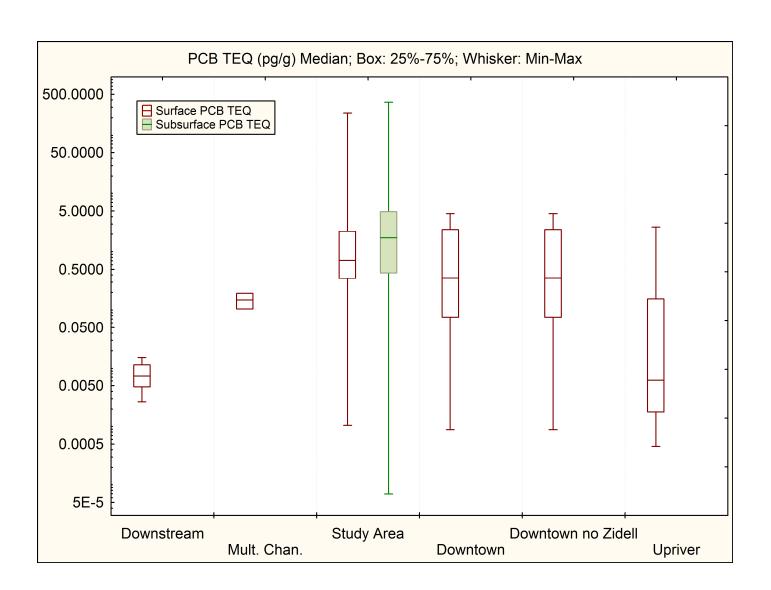


Figure D1.1–2
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Remedial Investigation Report
Scatter Plot of PCB TEQ (ND = 0)
Concentrations in Subsurface Sediment, RM 0.8–12.2



Figure D1.1-3
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Histogram of Mean Total PCB TEQ (ND=0) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



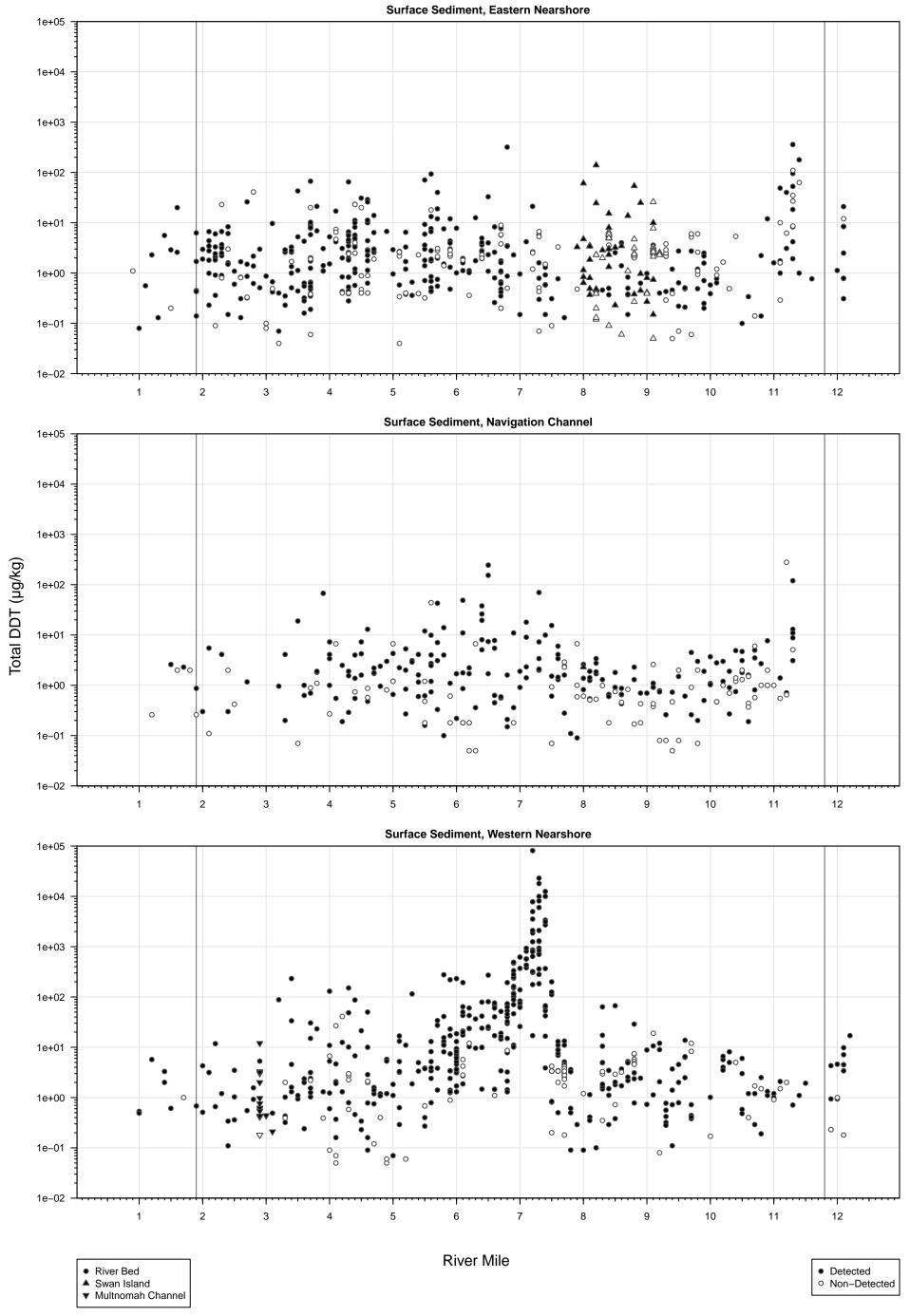


Figure D1.1–5
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Remedial Investigation Report
Scatter Plot of Total DDT
Concentrations in Surface Sediment, RM 0.8–12.2

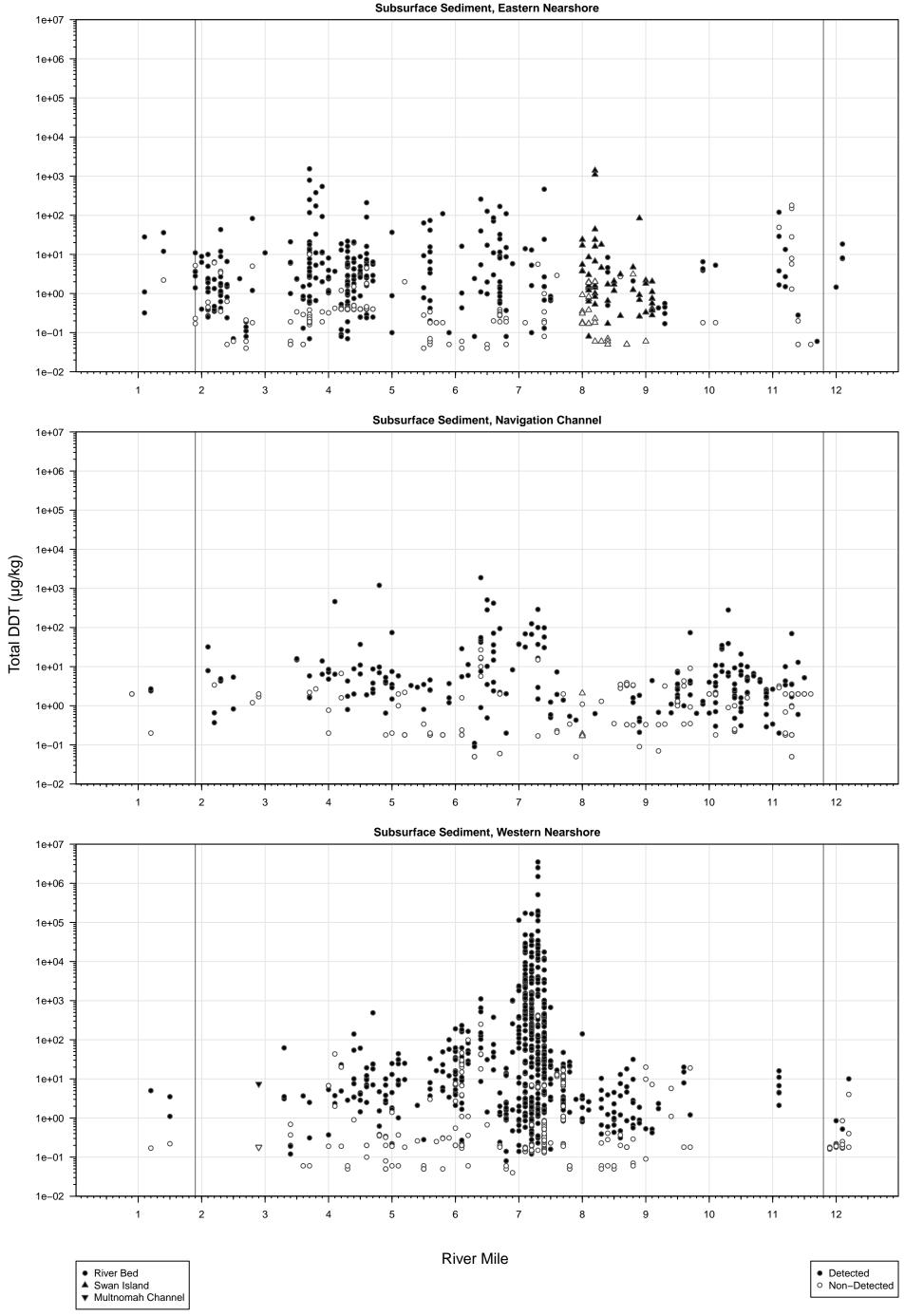


Figure D1.1-6
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Remedial Investigation Report
Scatter Plot of Total DDT
Concentrations in Subsurface Sediment, RM 0.8–12.2

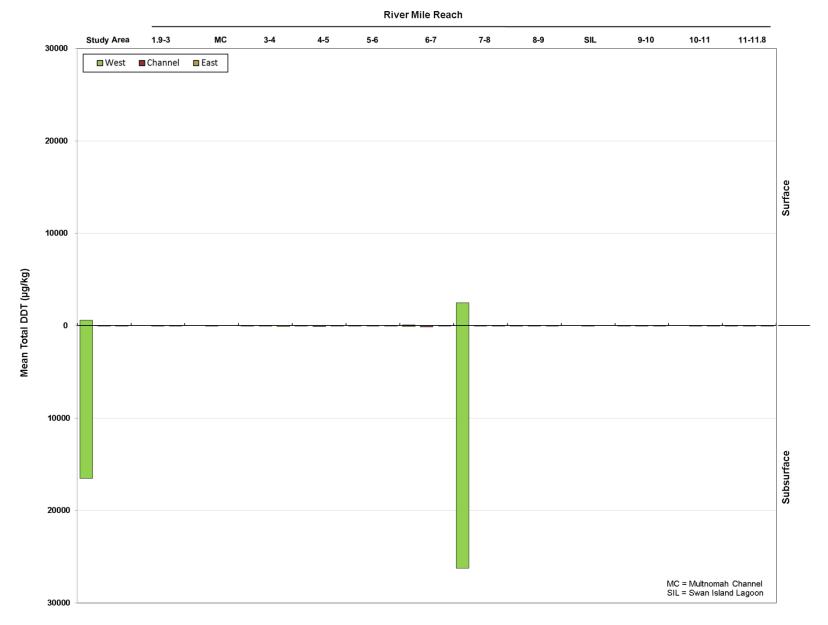
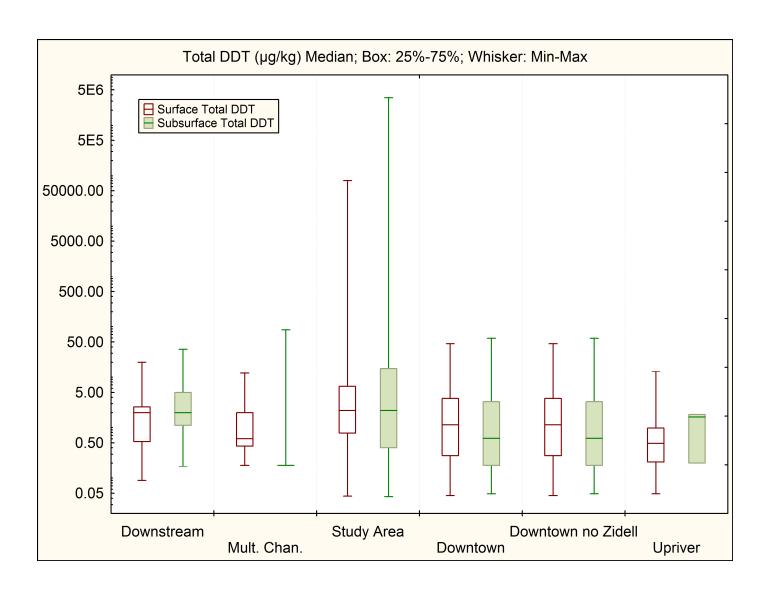


Figure D1.1-7
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Histogram of Mean Total DDT Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



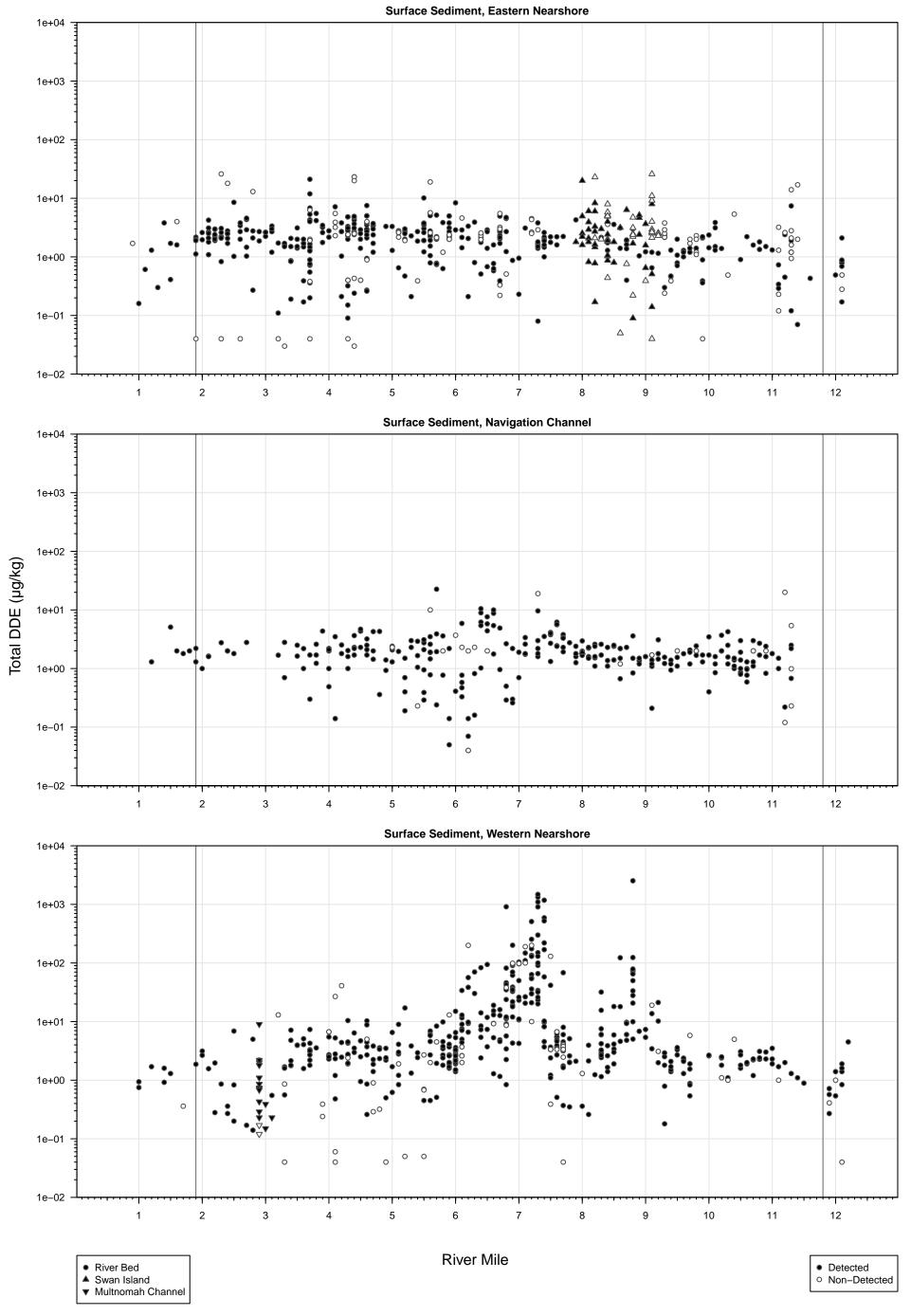


Figure D1.1-9
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total DDE
Concentrations in Surface Sediment, RM 0.8–12.2

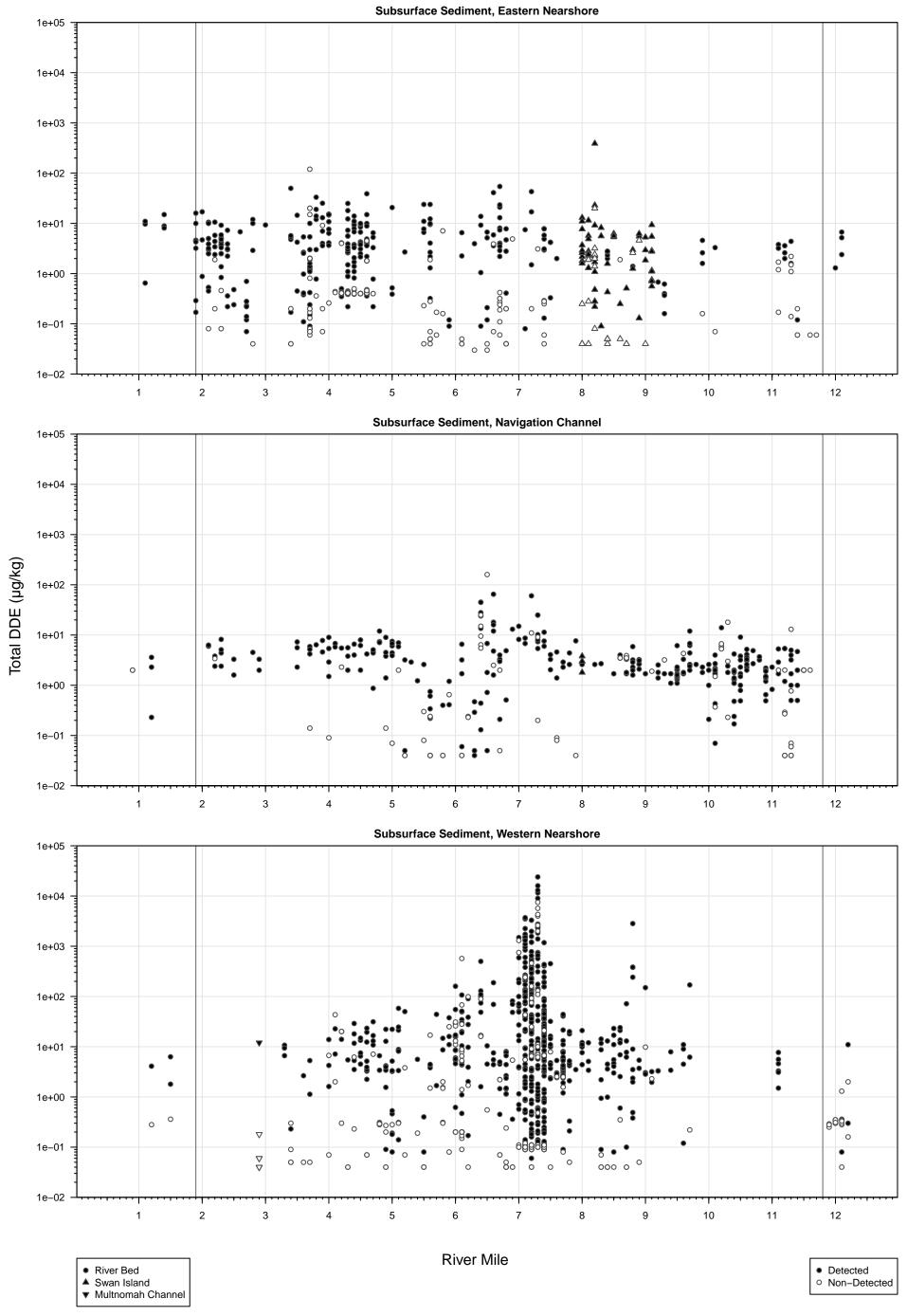


Figure D1.1–10
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total DDE
Concentrations in Subsurface Sediment, RM 0.8–12.2

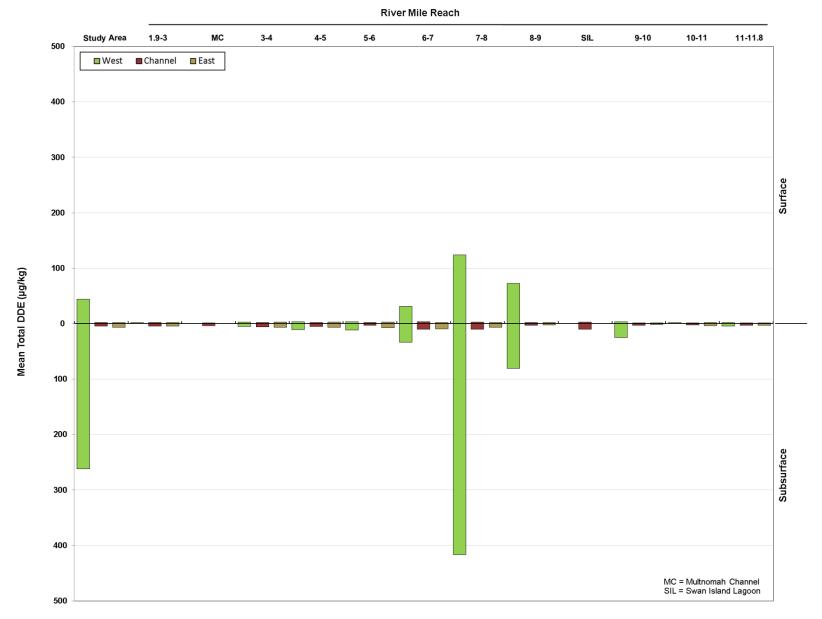
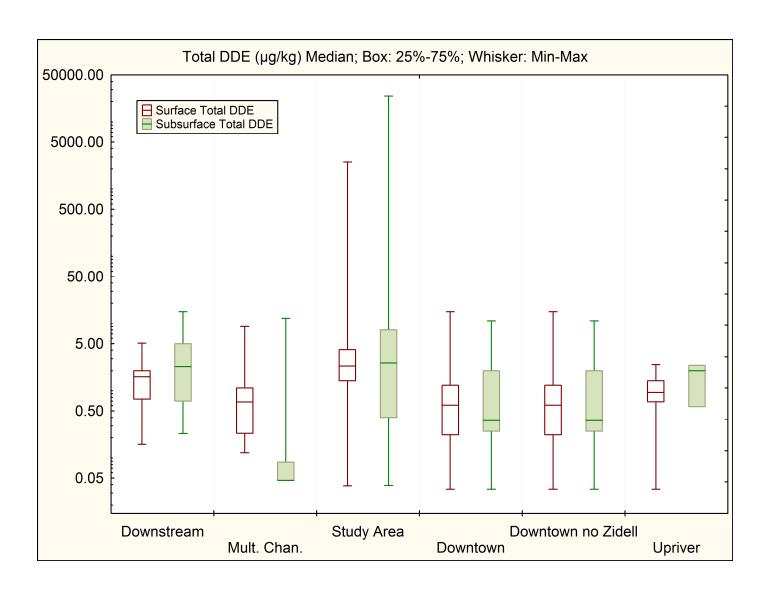


Figure D1.1-11
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total DDE Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



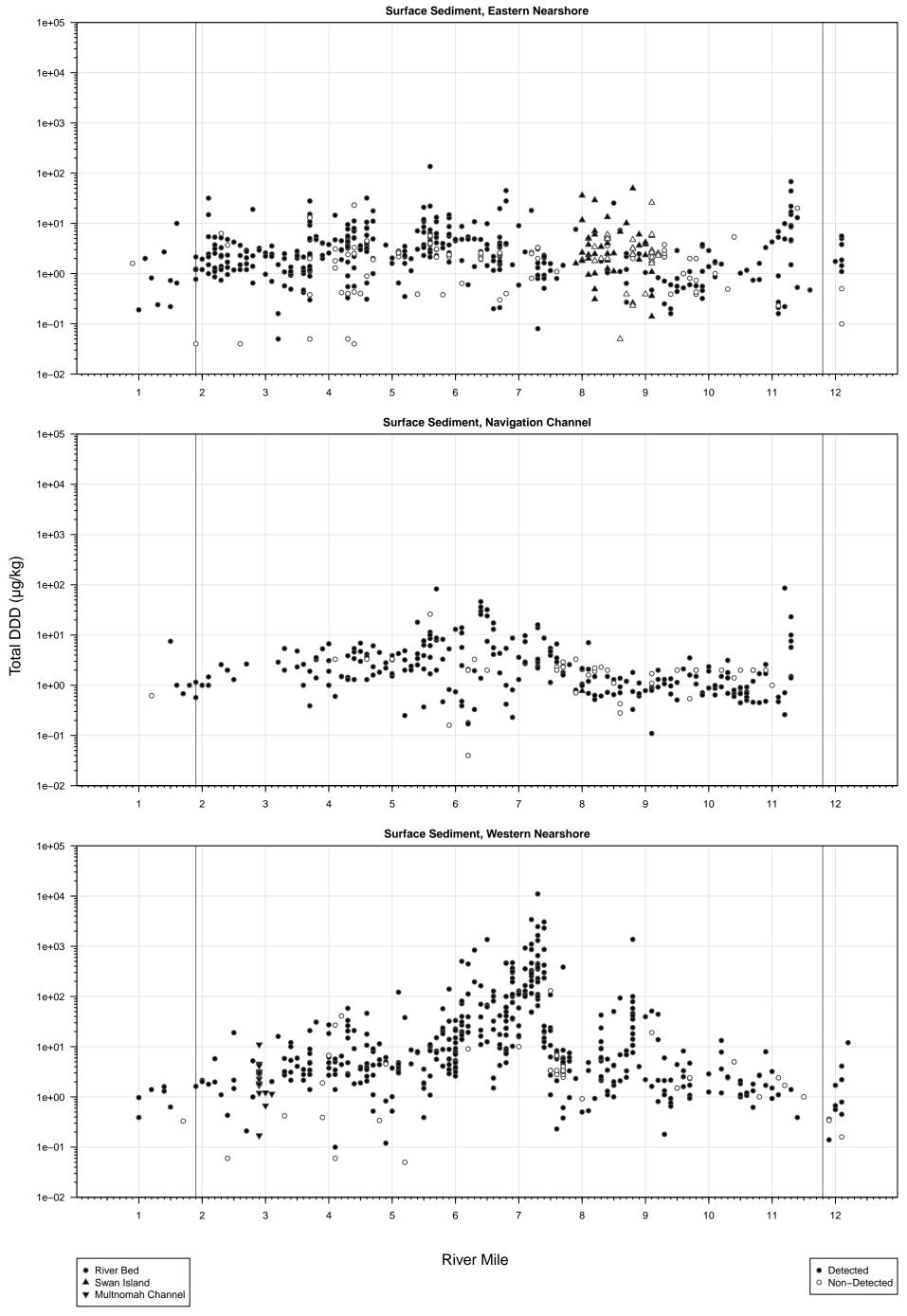


Figure D1.1–13

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Scatter Plot of Total DDD

Concentrations in Surface Sediment, RM 0.8–12.2

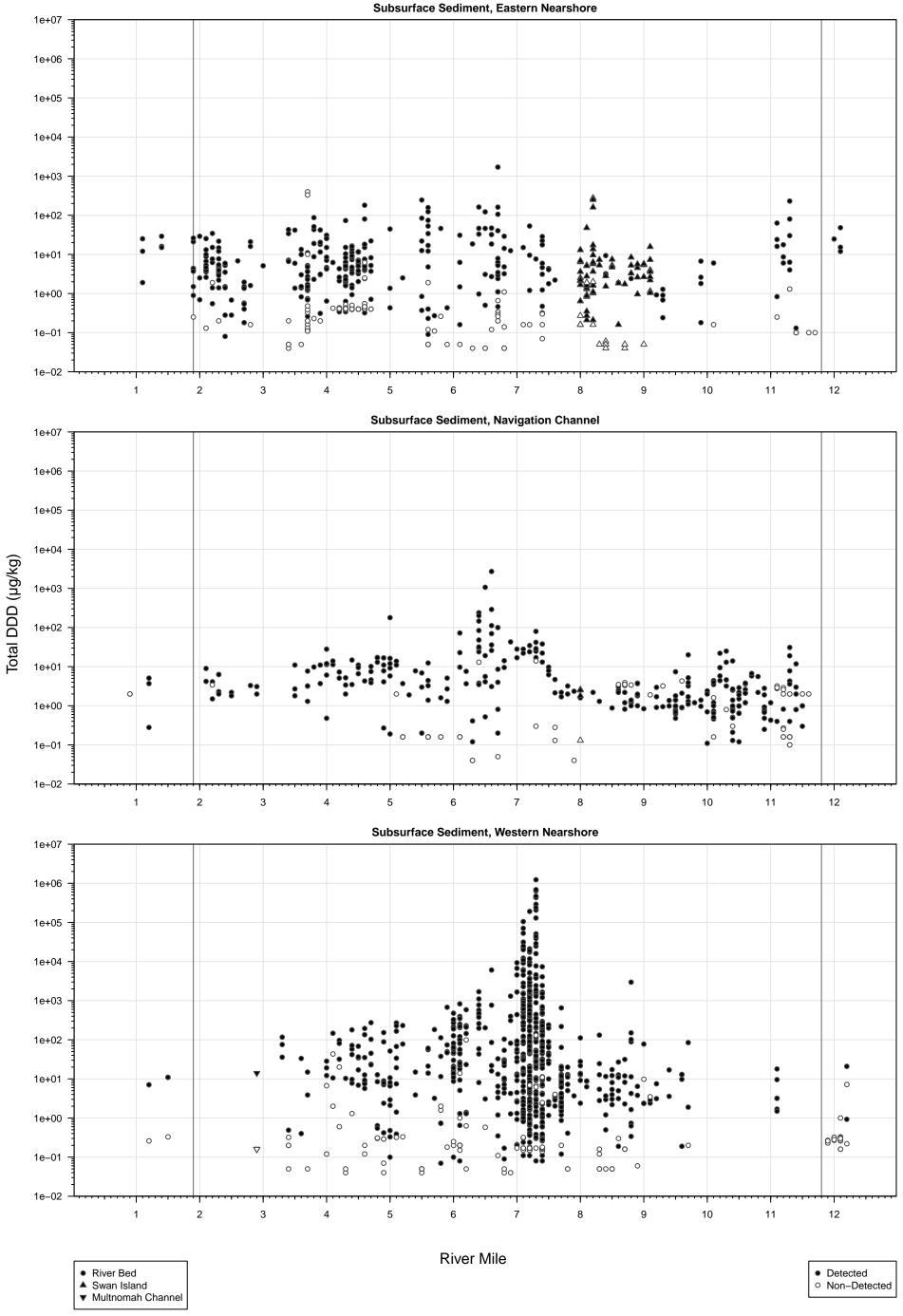


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Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total DDD
Concentrations in Subsurface Sediment, RM 0.8–12.2

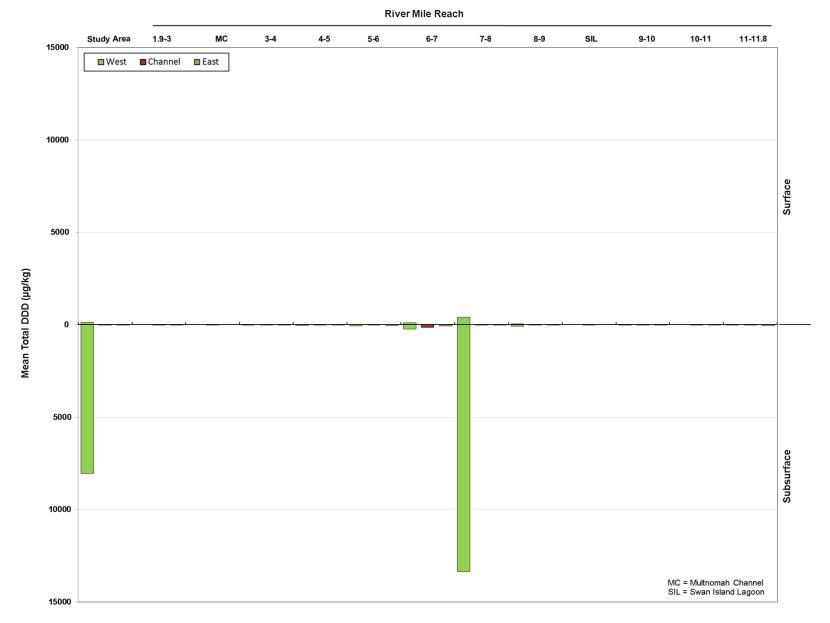
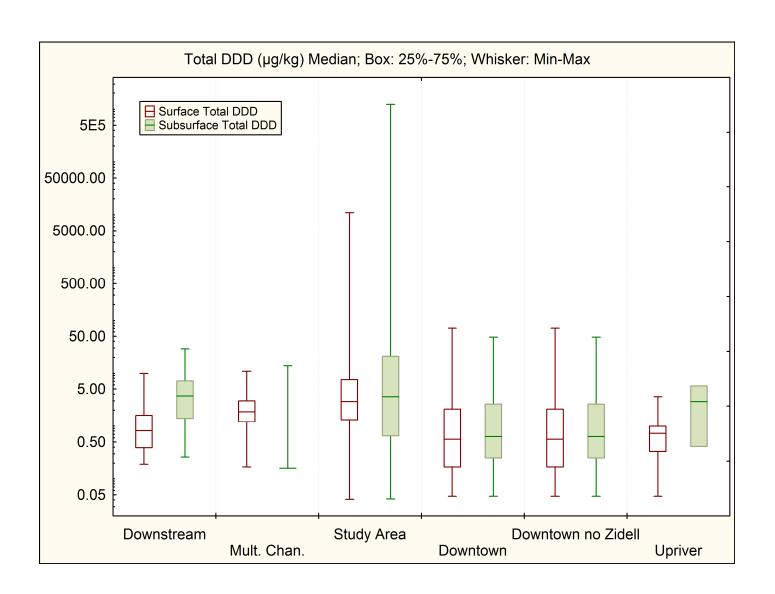


Figure D1.1-15
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total DDD Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



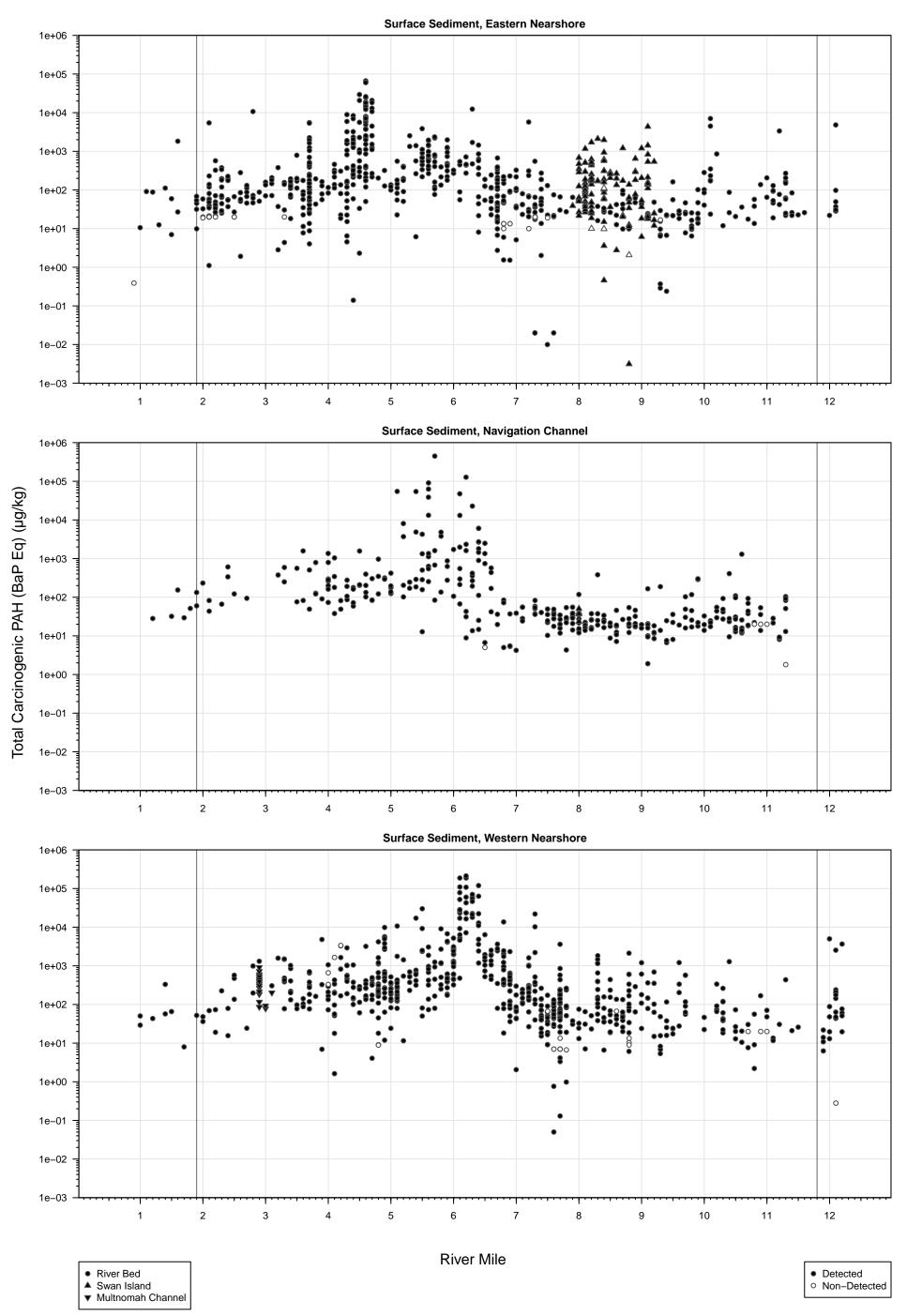


Figure D1.1–17
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Carcinogenic PAH (BaP Eq)
Concentrations in Surface Sediment, RM 0.8–12.2

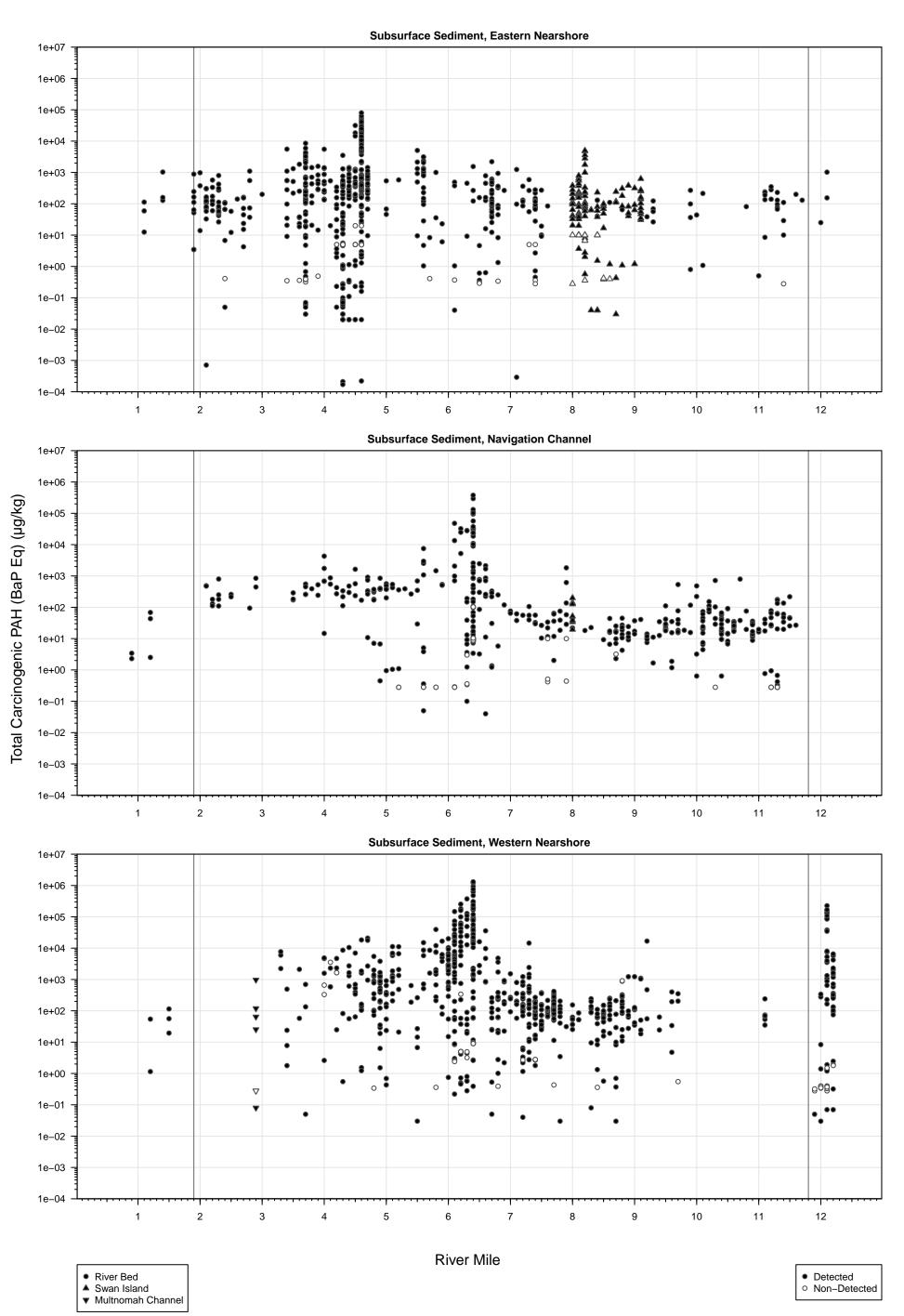


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Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Carcinogenic PAH (BaP Eq)
Concentrations in Subsurface Sediment, RM 0.8–12.2

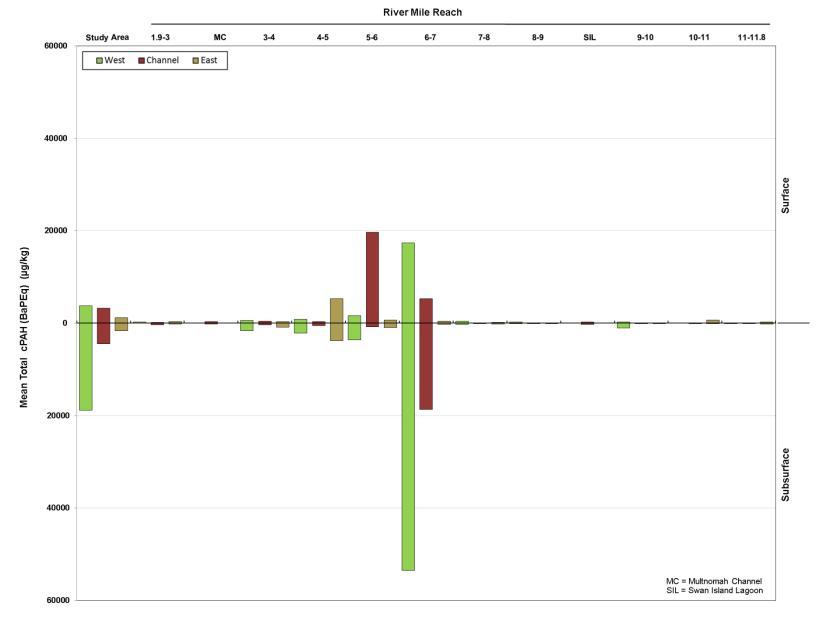
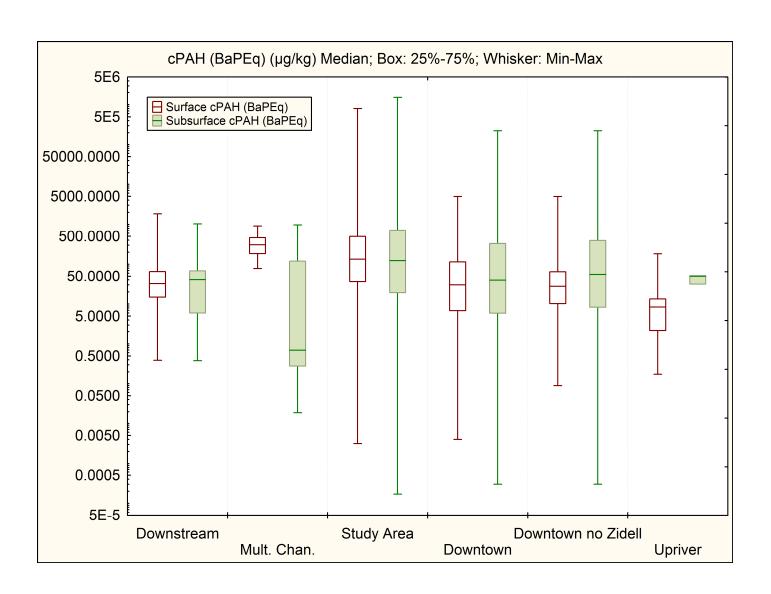


Figure D1.1-19
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Remedial Investigation Report
Histogram of Total Carcinogenic PAH (BaPEq) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



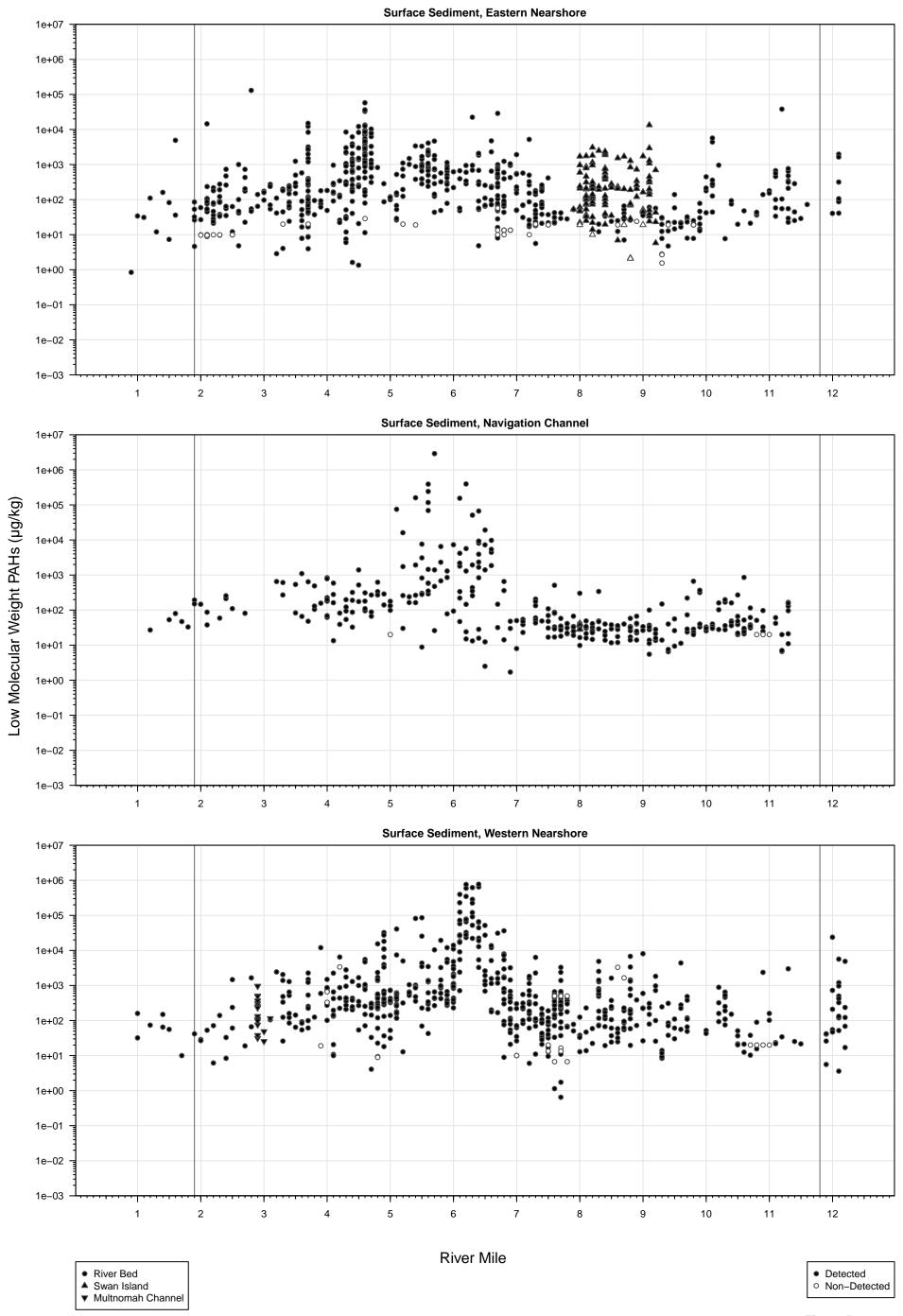


Figure D1.1–21
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Low Molecular Weight PAH
Concentrations in Surface Sediment, RM 0.8–12.2

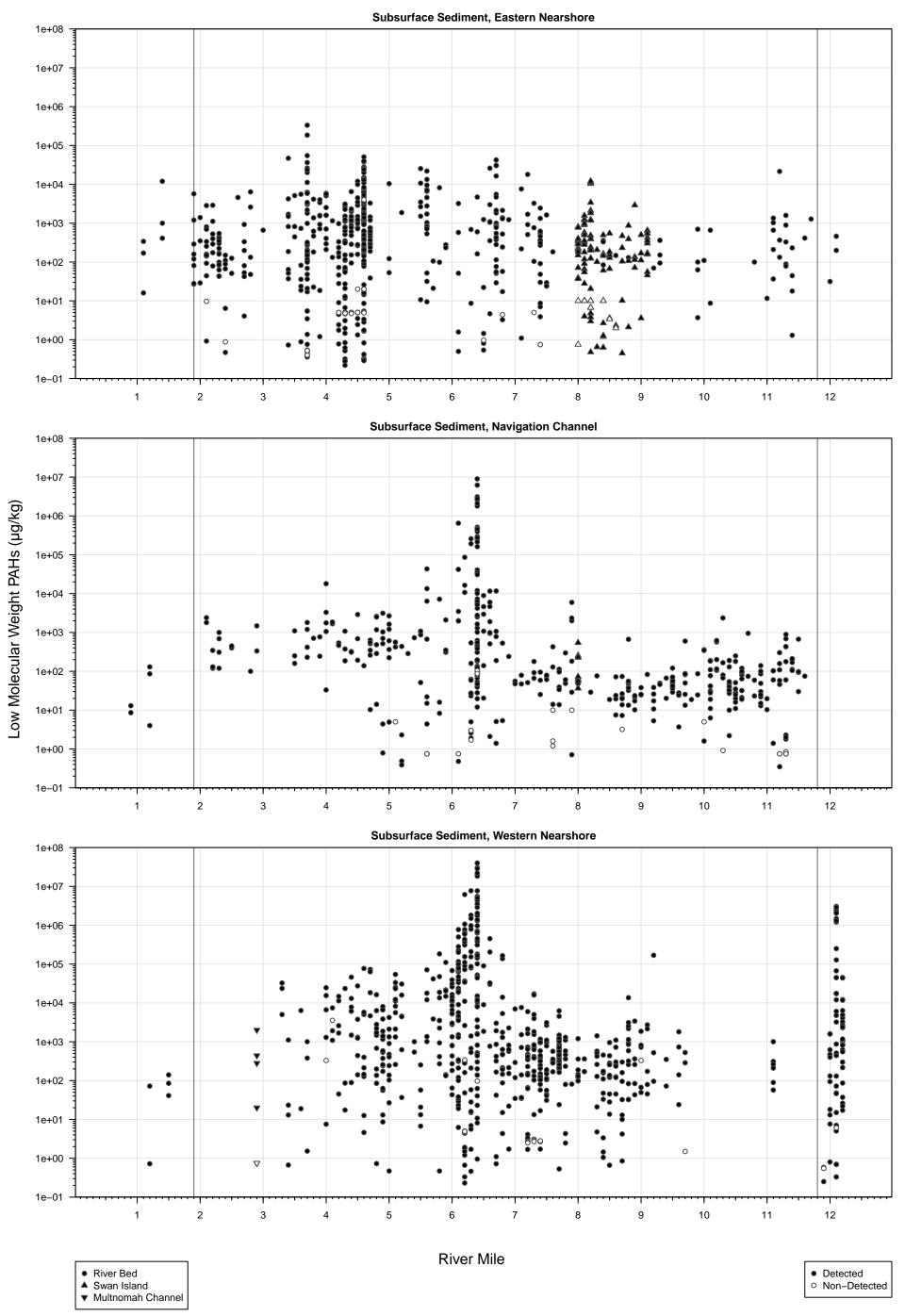
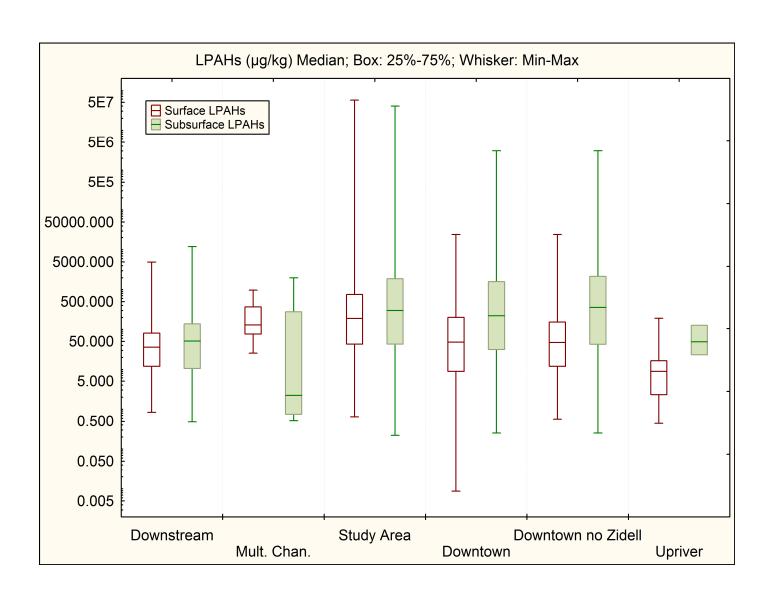


Figure D1.1–22
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Remedial Investigation Report
Scatter Plot of Low Molecular Weight PAH
Concentrations in Subsurface Sediment, RM 0.8–12.2



Figure D1.1-23
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Remedial Investigation Report
Histogram of Mean Low Molecular Weight PAH Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



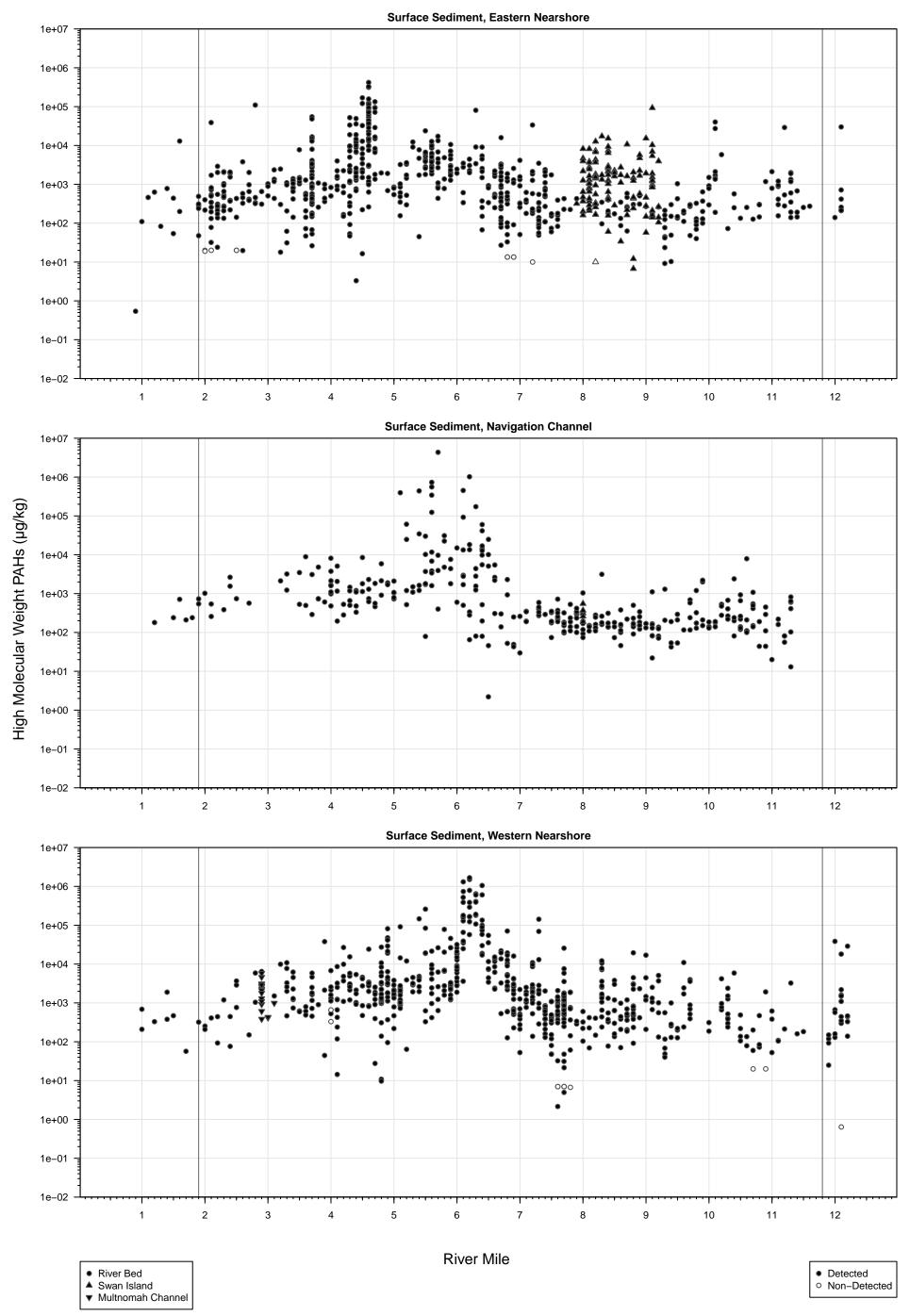


Figure D1.1–25
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of High Molecular Weight PAH
Concentrations in Surface Sediment, RM 0.8–12.2

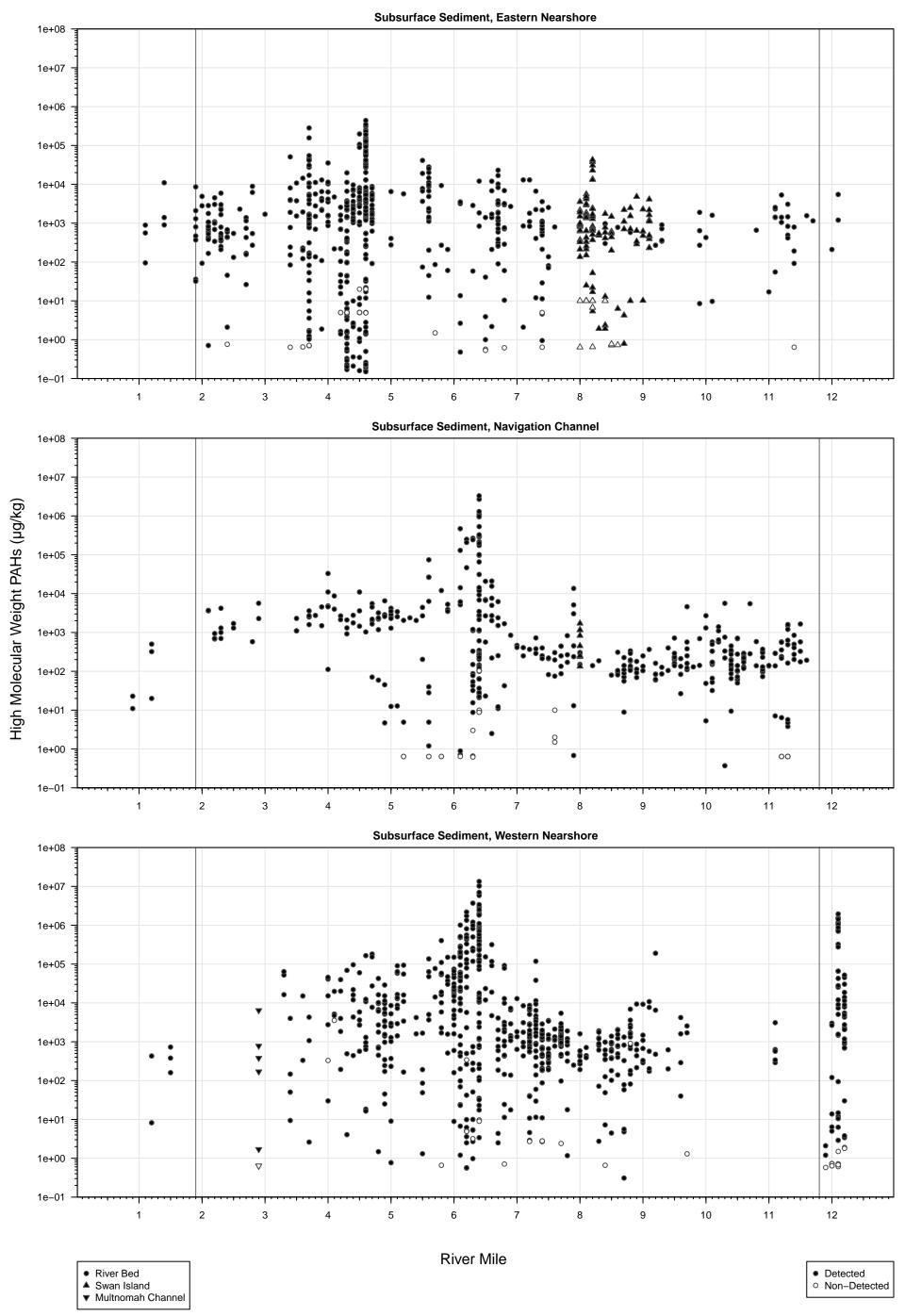


Figure D1.1–26
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of High Molecular Weight PAH
Concentrations in Subsurface Sediment, RM 0.8–12.2

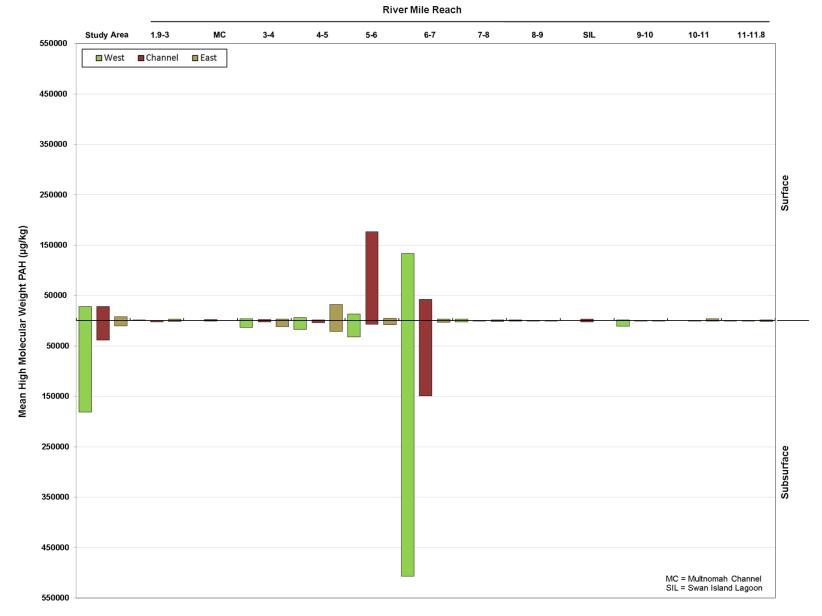
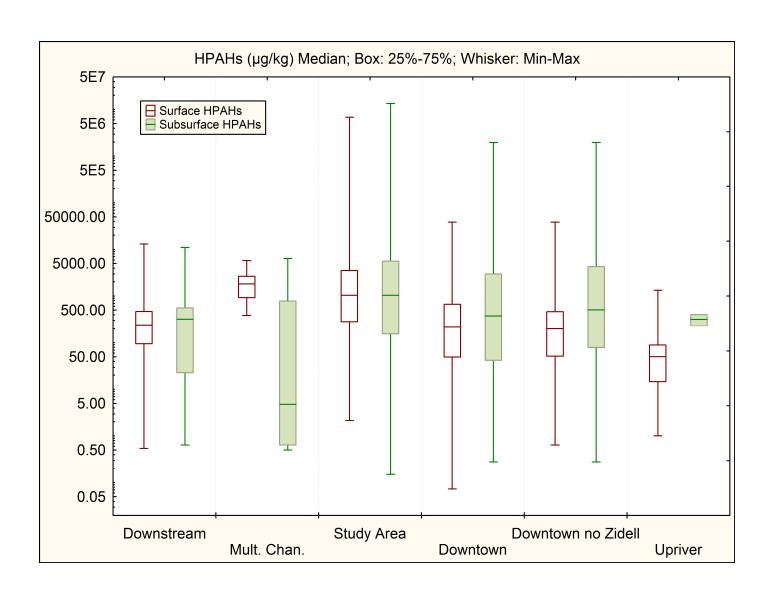


Figure D1.1-27
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Remedial Investigation Report
Histogram of Mean High Molecular Weight PAH Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



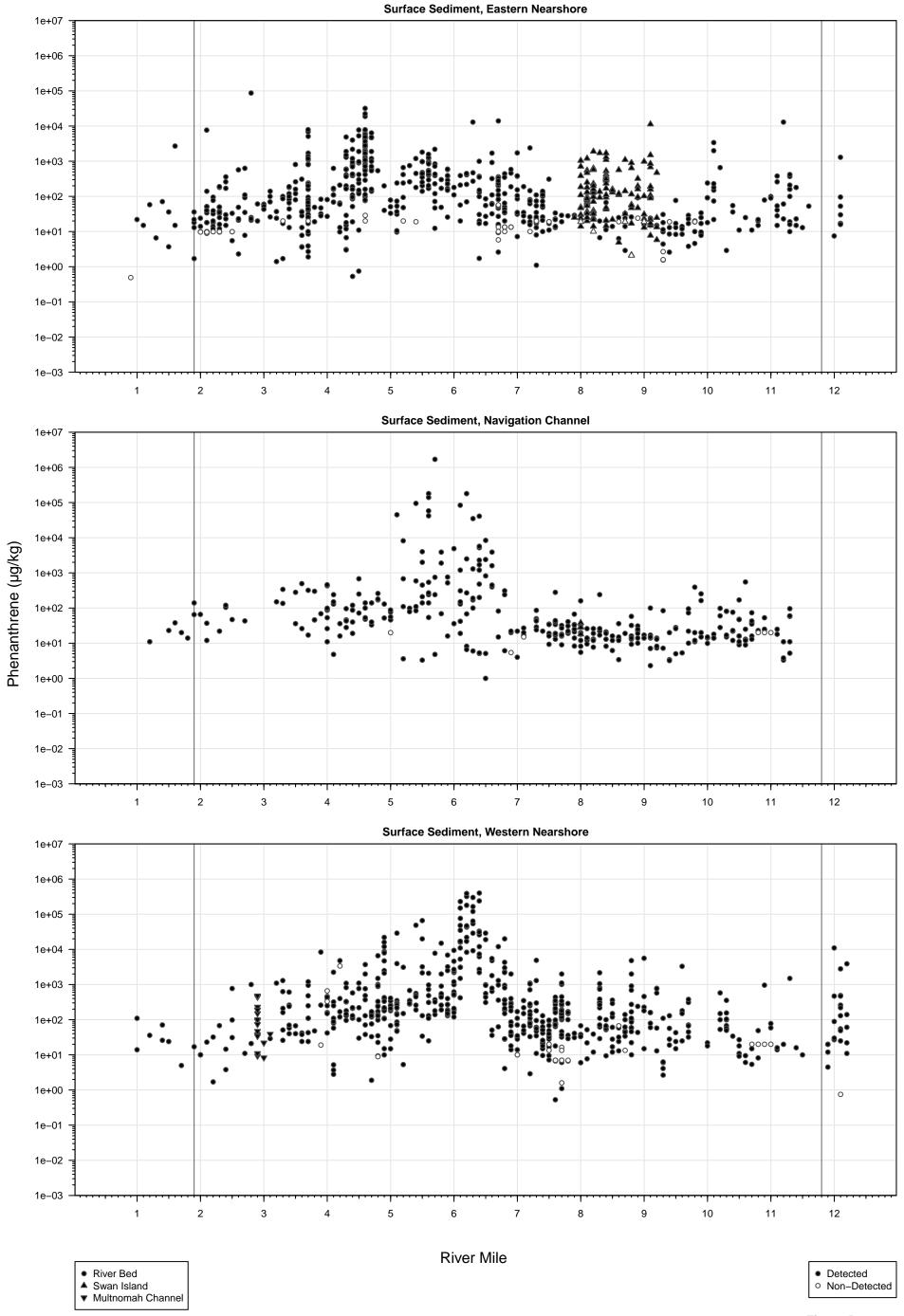


Figure D1.1–29
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Phenanthrene
Concentrations in Surface Sediment, RM 0.8–12.2

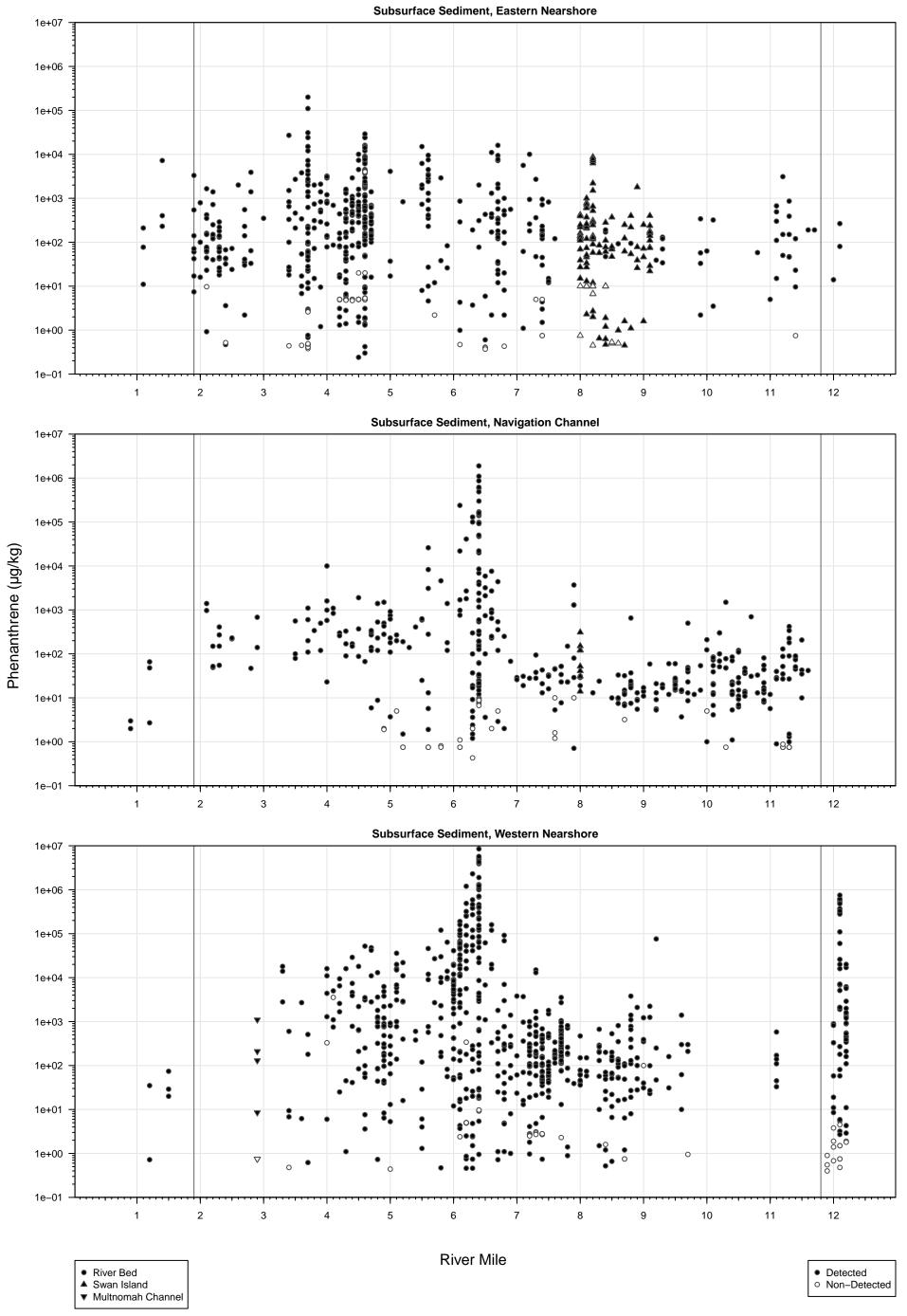


Figure D1.1–30
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Phenanthrene
Concentrations in Subsurface Sediment, RM 0.8–12.2

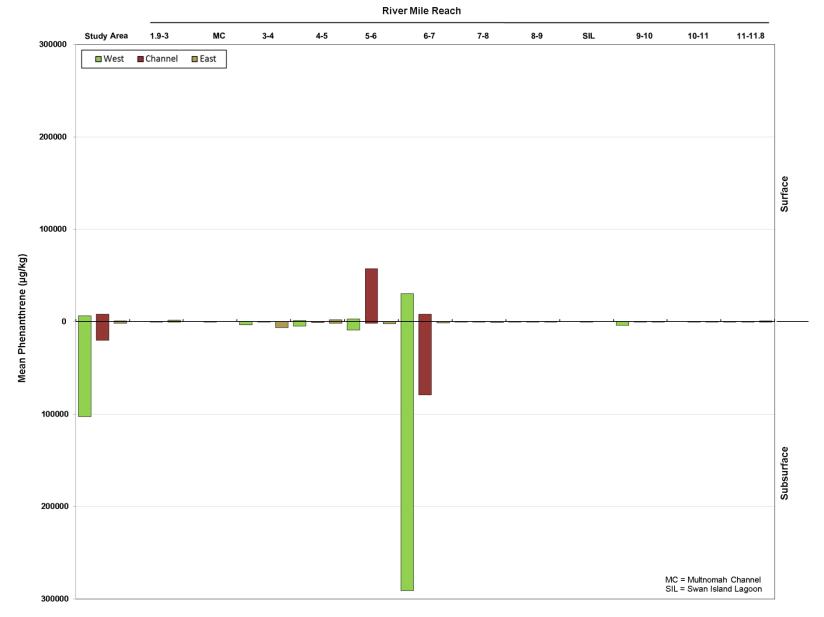
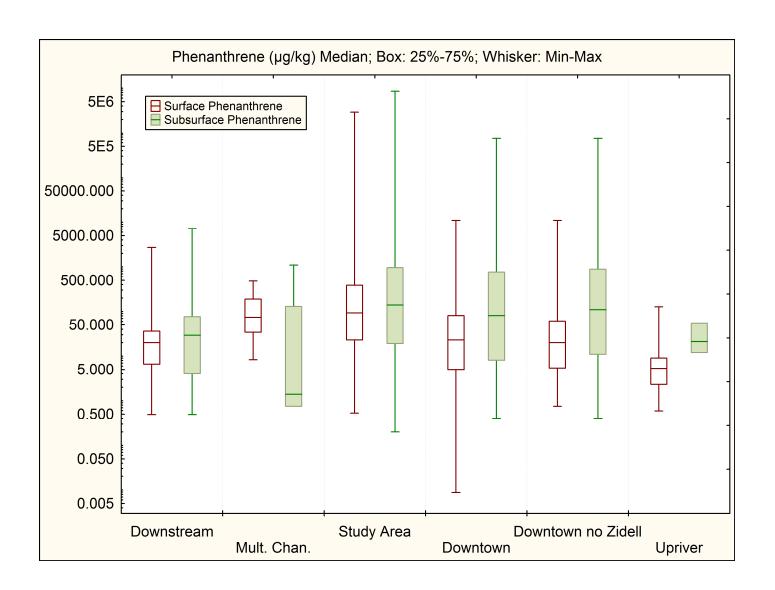


Figure D1.1-31
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Phenanthrene Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



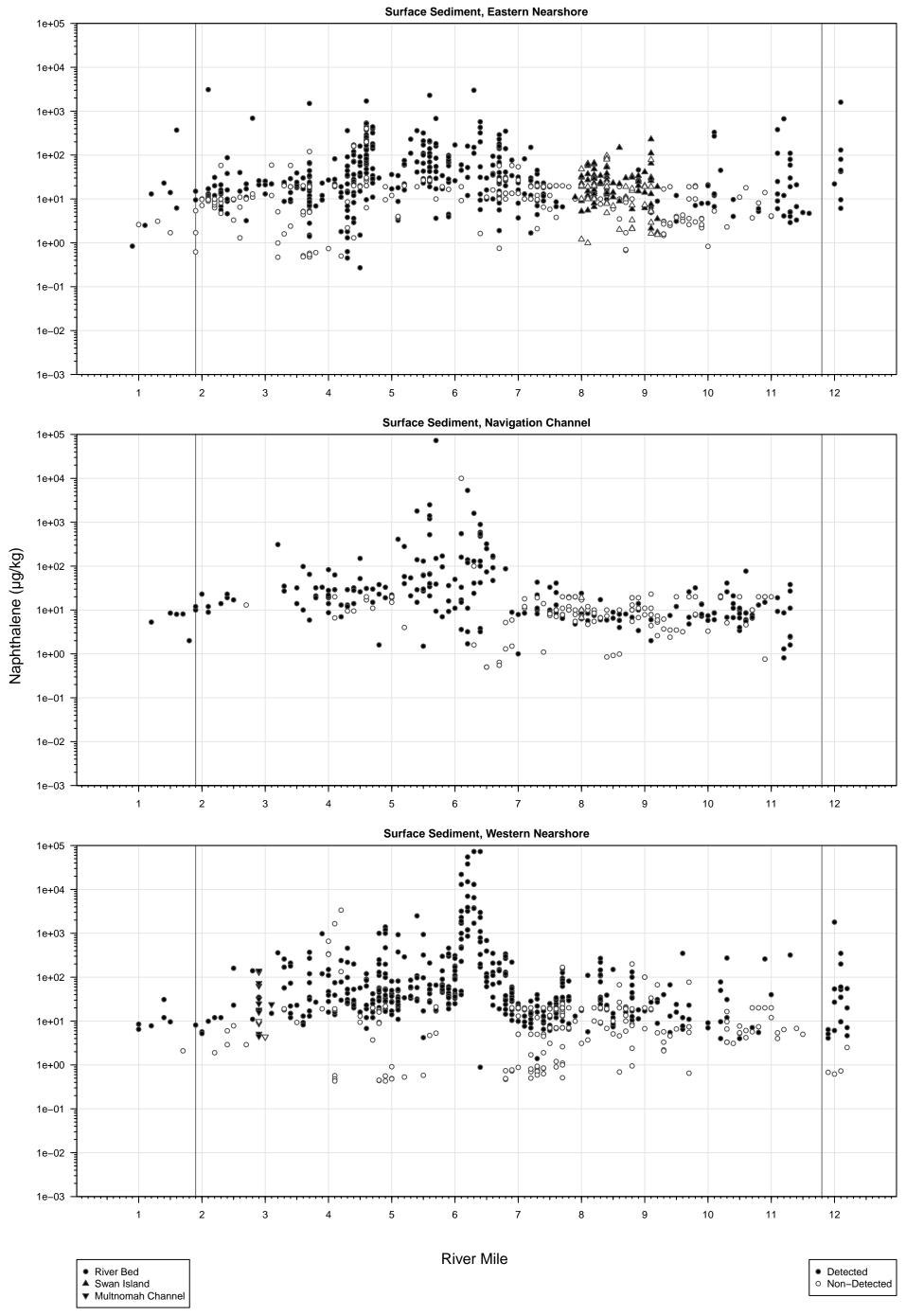


Figure D1.1–33
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Naphthalene
Concentrations in Surface Sediment, RM 0.8–12.2

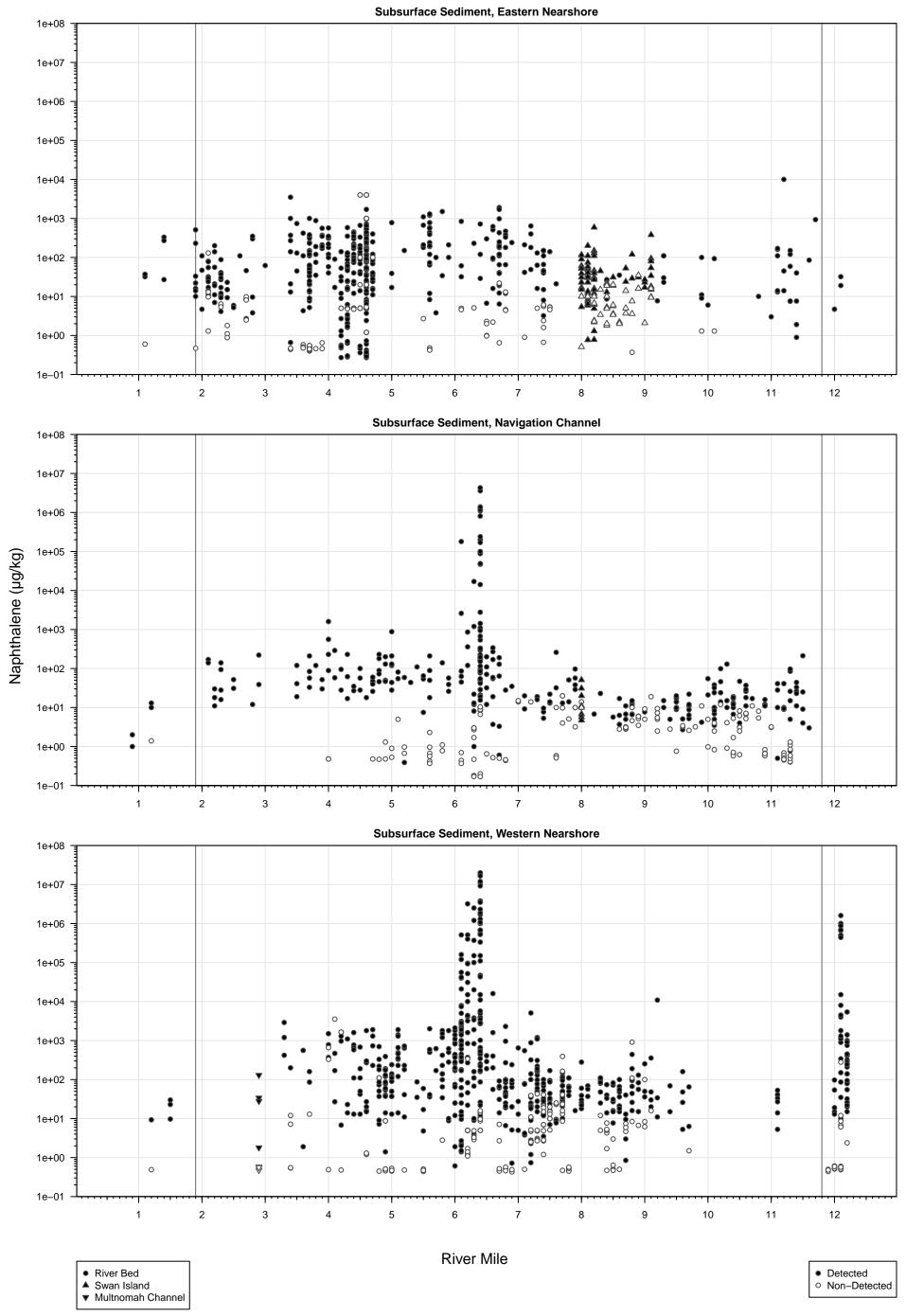


Figure D1.1–34
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Remedial Investigation Report
Scatter Plot of Naphthalene
Concentrations in Subsurface Sediment, RM 0.8–12.2

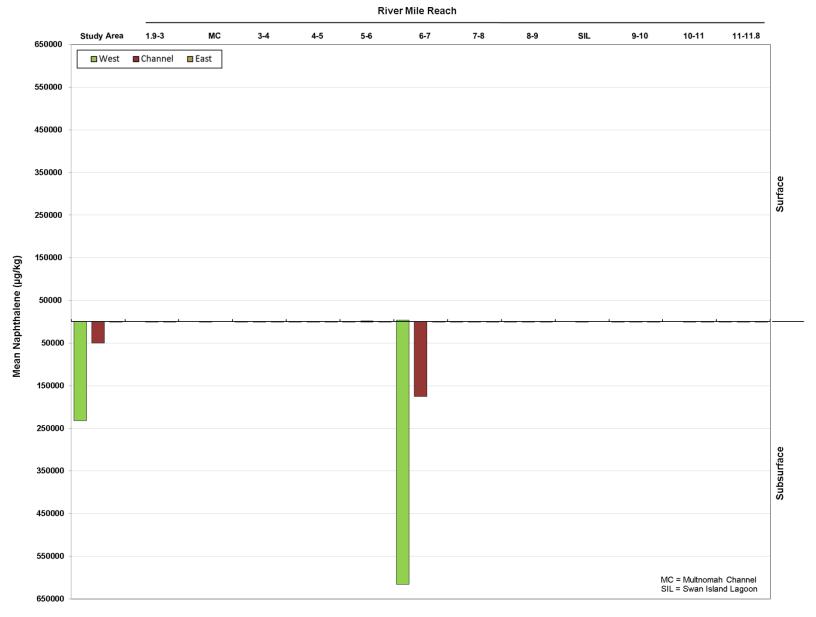
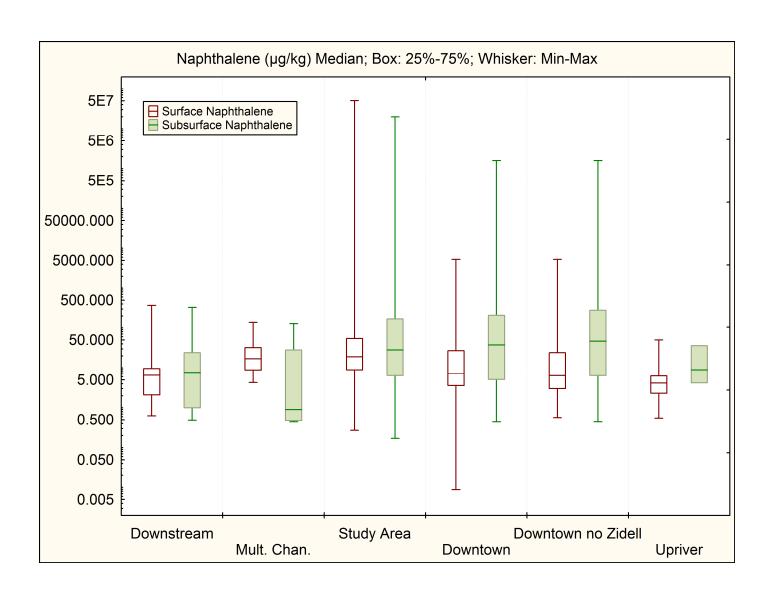


Figure D1.1-35
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Naphthalene Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



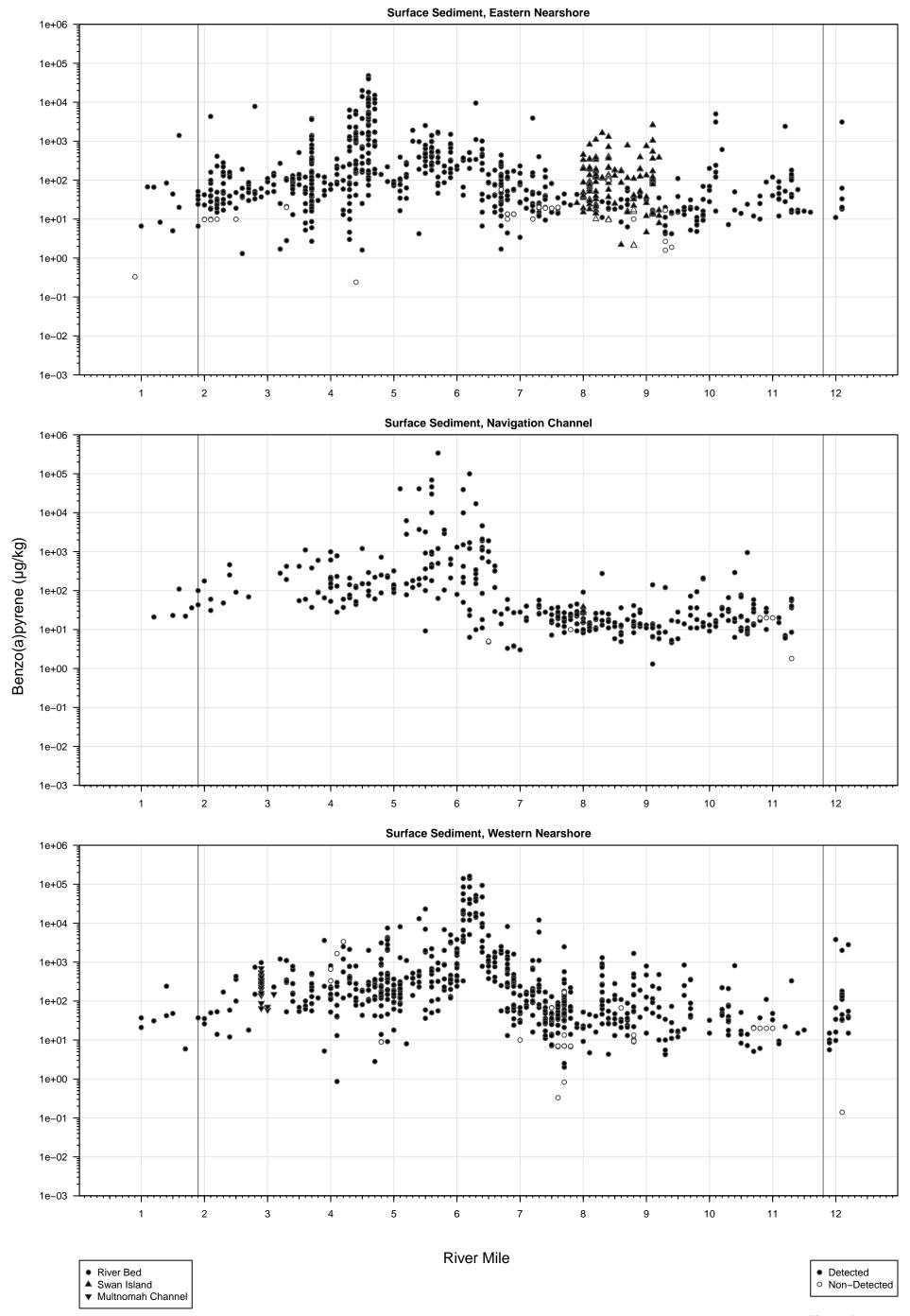


Figure D1.1–37
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Benzo(a)pyrene
Concentrations in Surface Sediment, RM 0.8–12.2

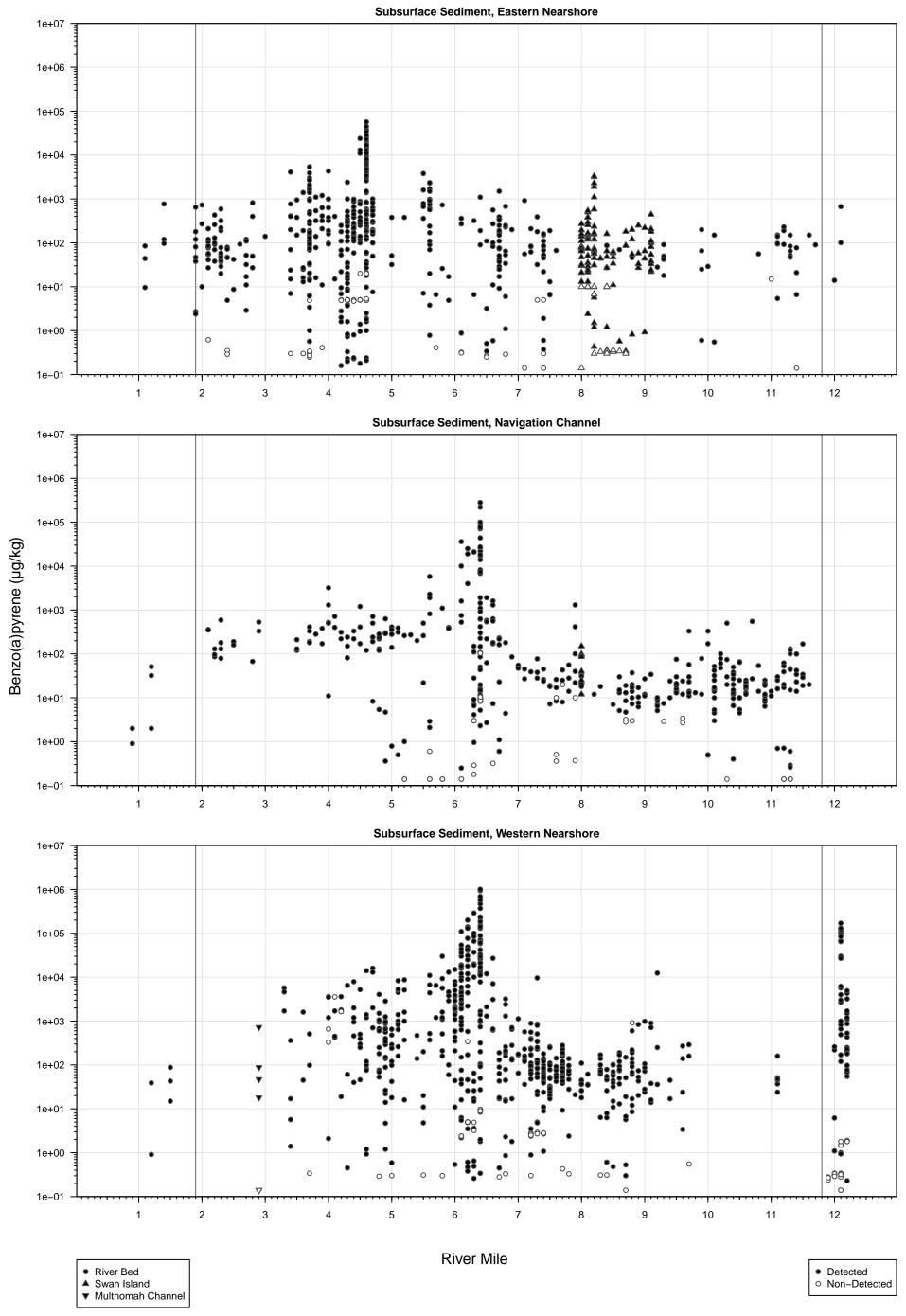


Figure D1.1–38

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Scatter Plot of Benzo(a)pyrene

Concentrations in Subsurface Sediment, RM 0.8–12.2

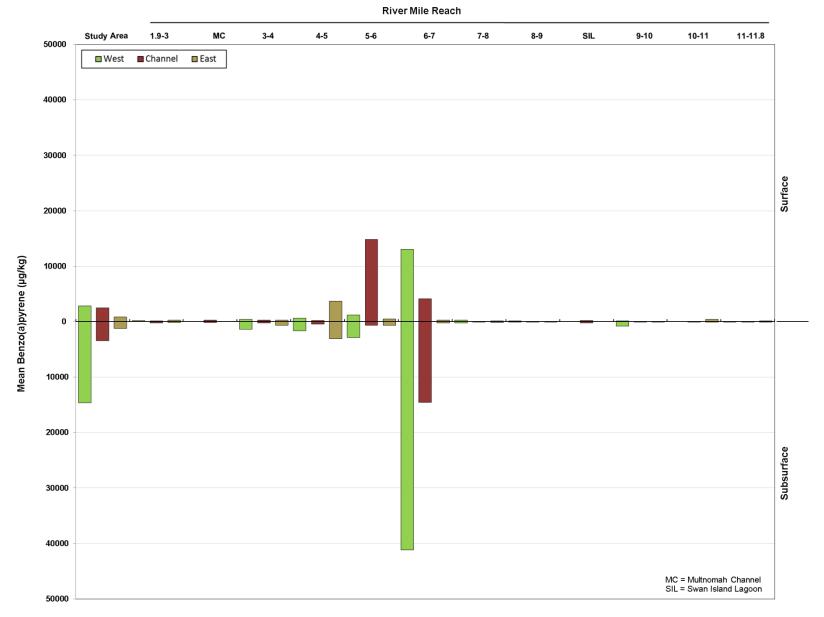
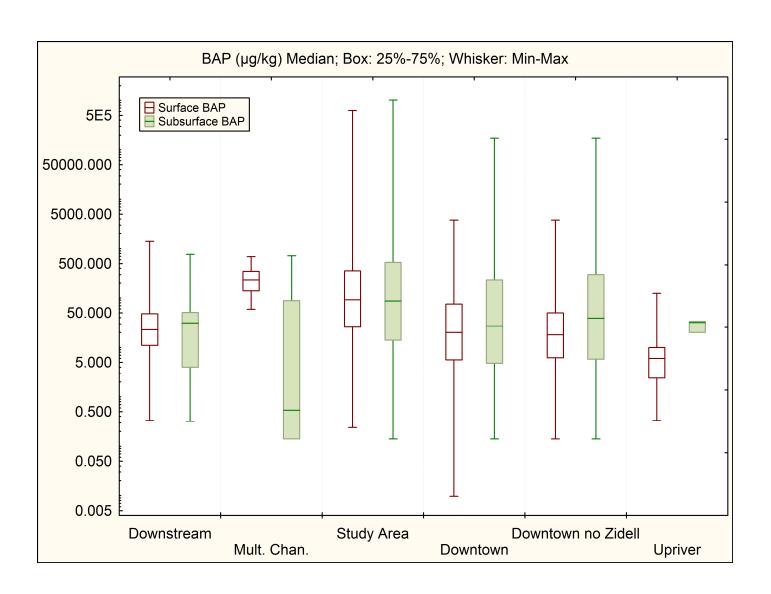


Figure D1.1-39
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Benzo(a)pyrene Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



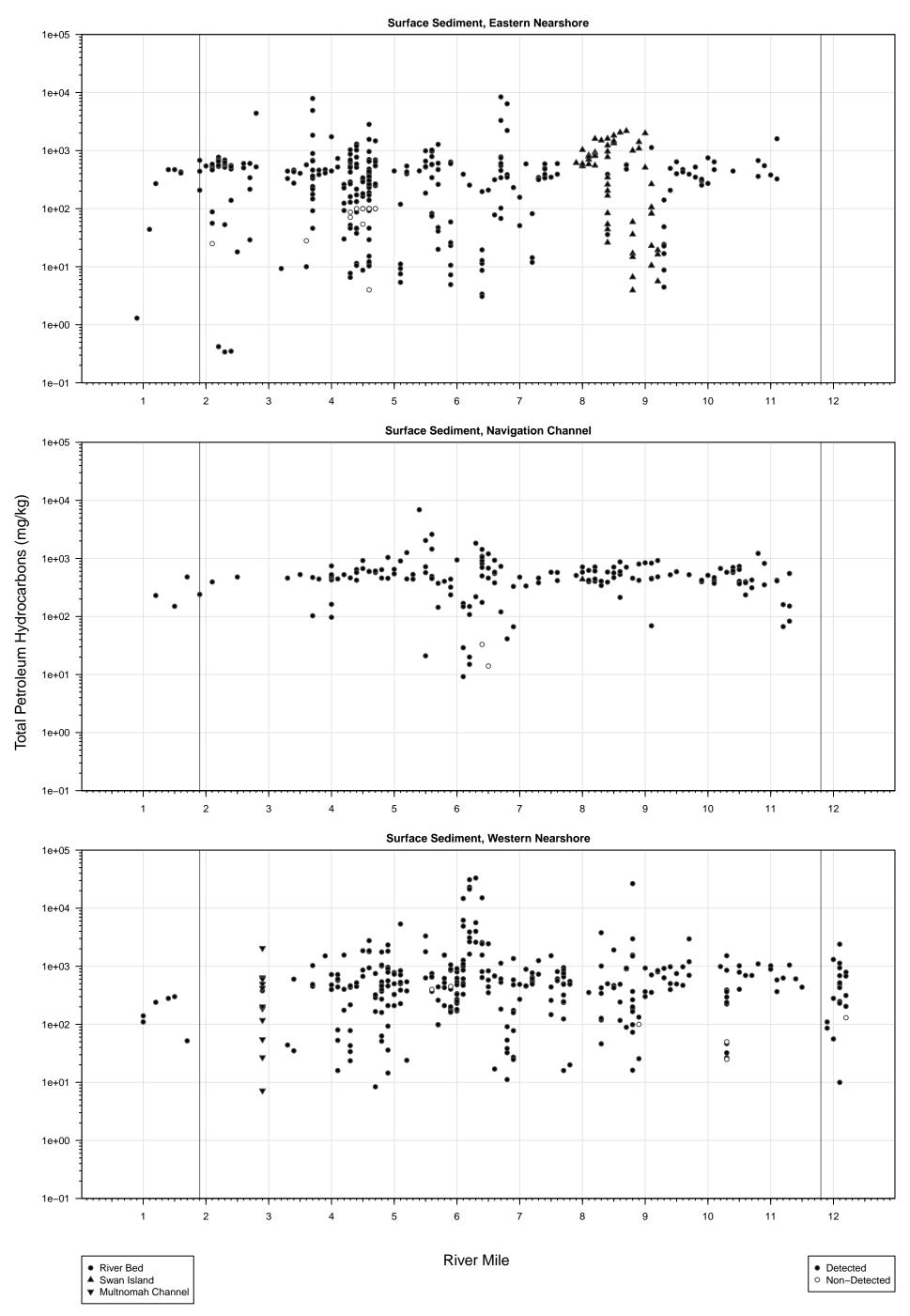


Figure D1.1–41
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon
Concentrations in Surface Sediment, RM 0.8–12.2

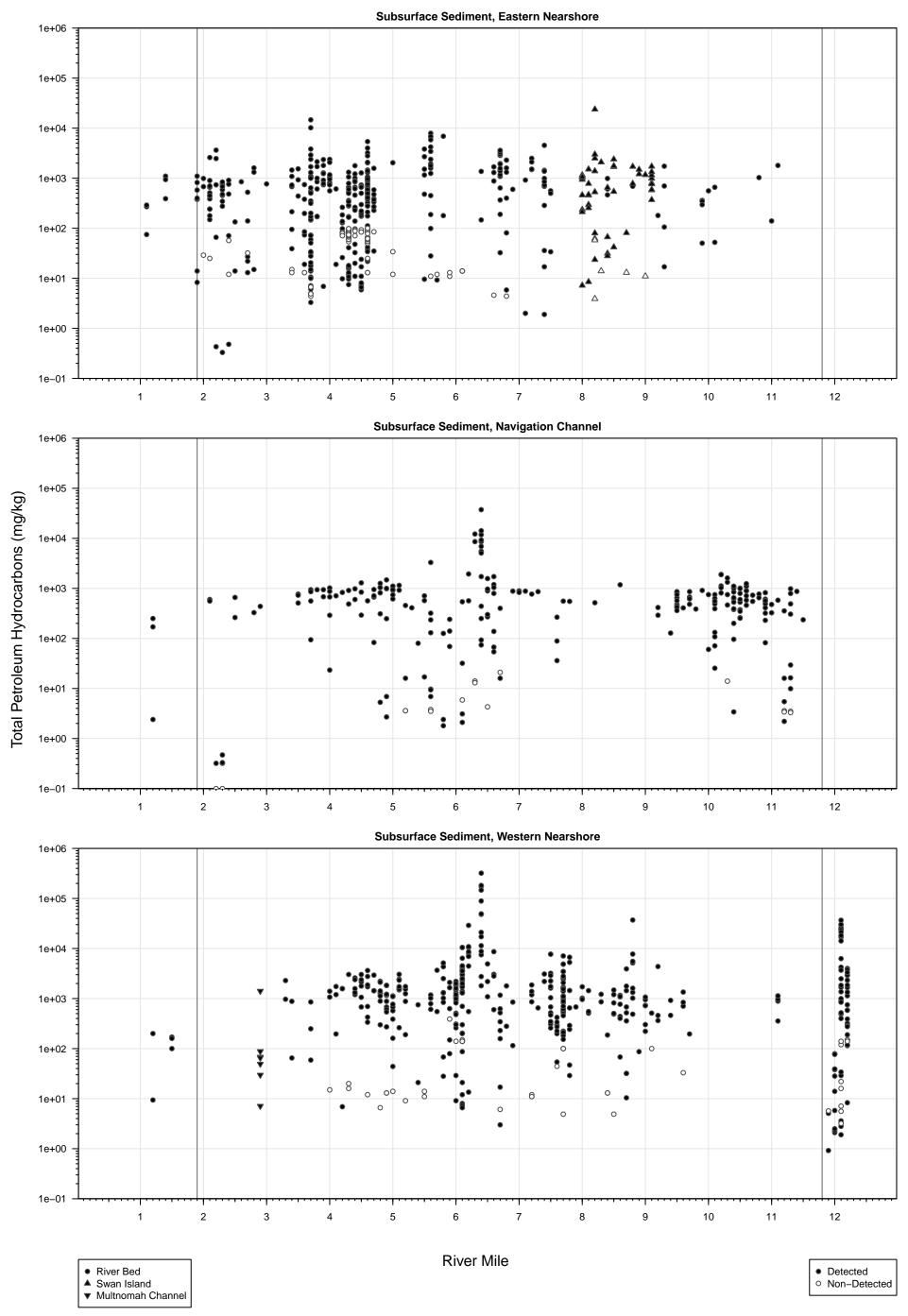


Figure D1.1–42
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon
Concentrations in Subsurface Sediment, RM 0.8–12.2

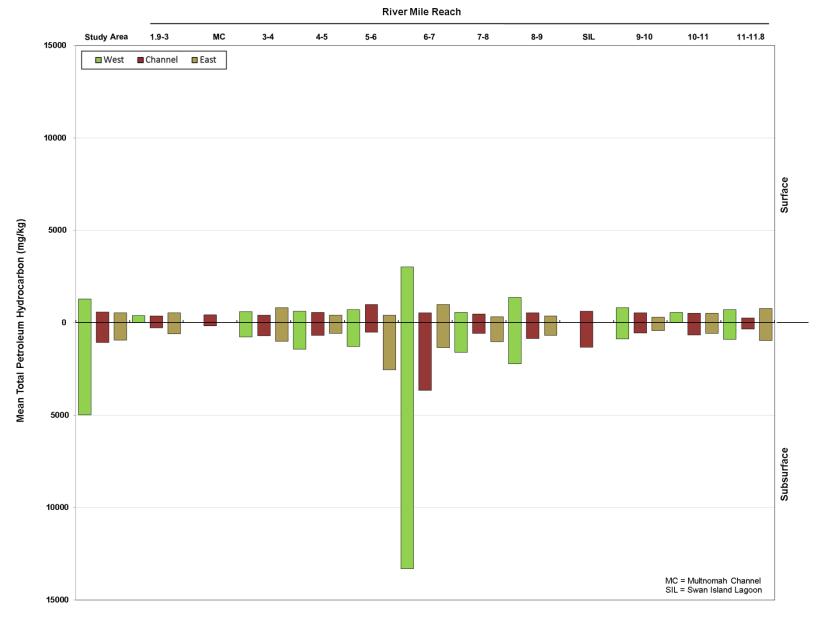
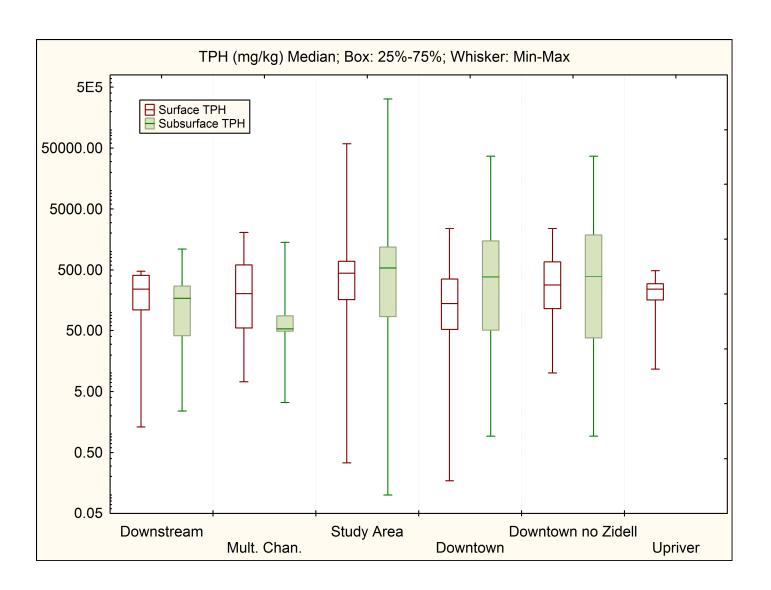


Figure D1.1-43
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Petroleum Hydrocarbon Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



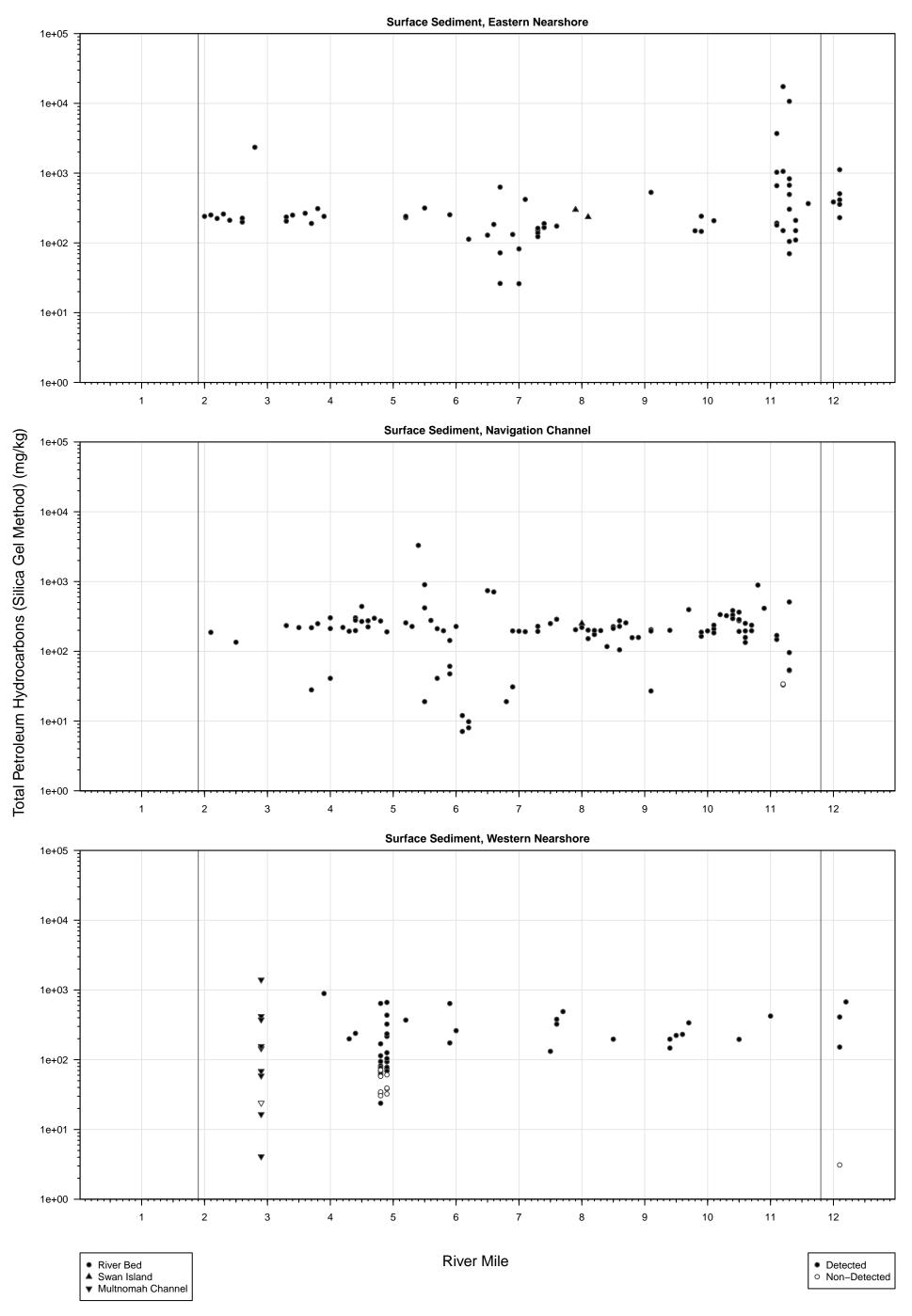


Figure D1.1–45
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Silica Gel Method)
Concentrations in Surface Sediment, RM 0.8–12.2

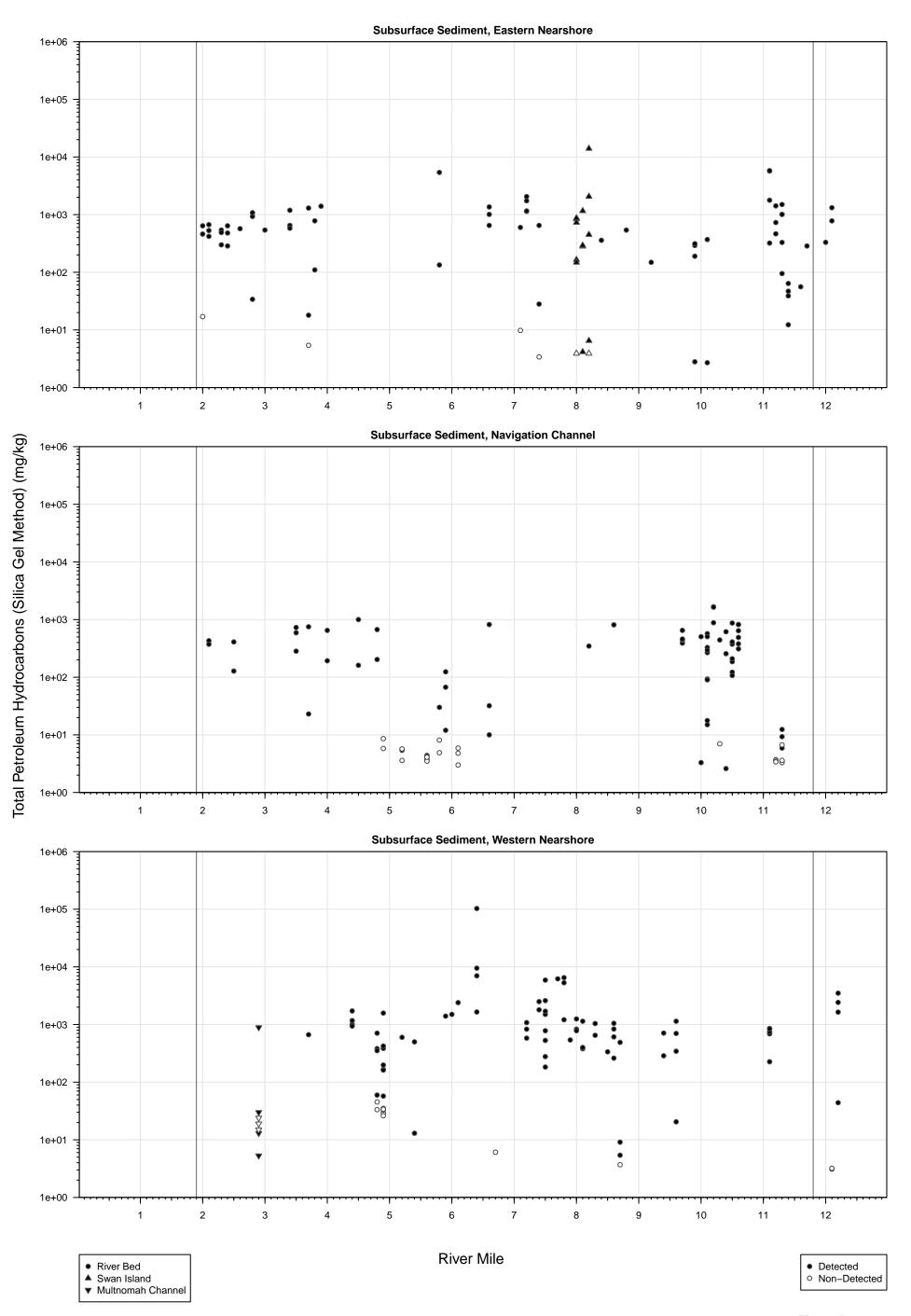
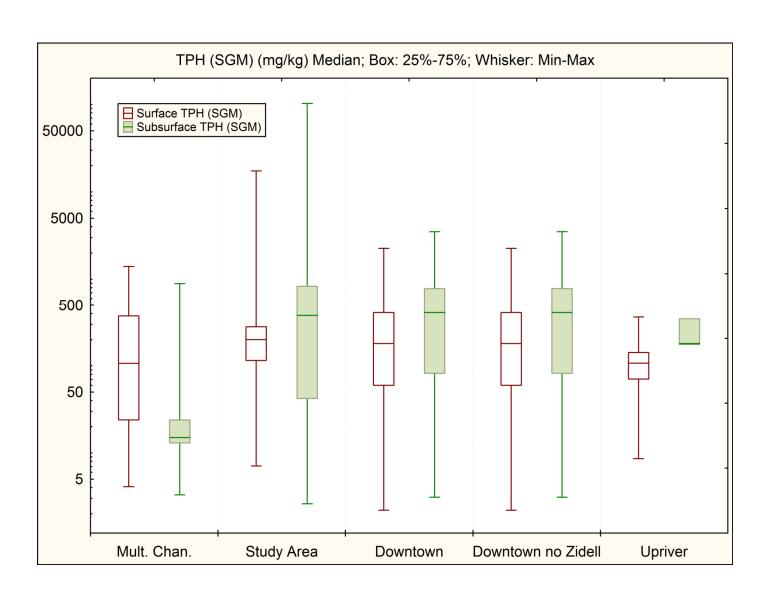


Figure D1.1–46
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Silica Gel Method)
Concentrations in Subsurface Sediment, RM 0.8–12.2



Figure D1.1-47
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Petroleum Hydrocarbon
(Silica Gel Method) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



Occasionally, small sample sizes (e.g., N<3) or data sets with multiple duplicate values can result in min/max whiskers that coincide with the upper/lower boundaries of the box plot (i.e., 25<sup>th</sup> and 75<sup>th</sup> percentiles). In these cases, no whiskers will be visible on the box plot.

# Figure D1.1-48 Portland Harbor RI/FS Remedial Investigation Report Box-Whisker Plot of Total Petroleum Hydrocarbons (Silica Gel Method) in Surface and Subsurface Sediment by River Reach

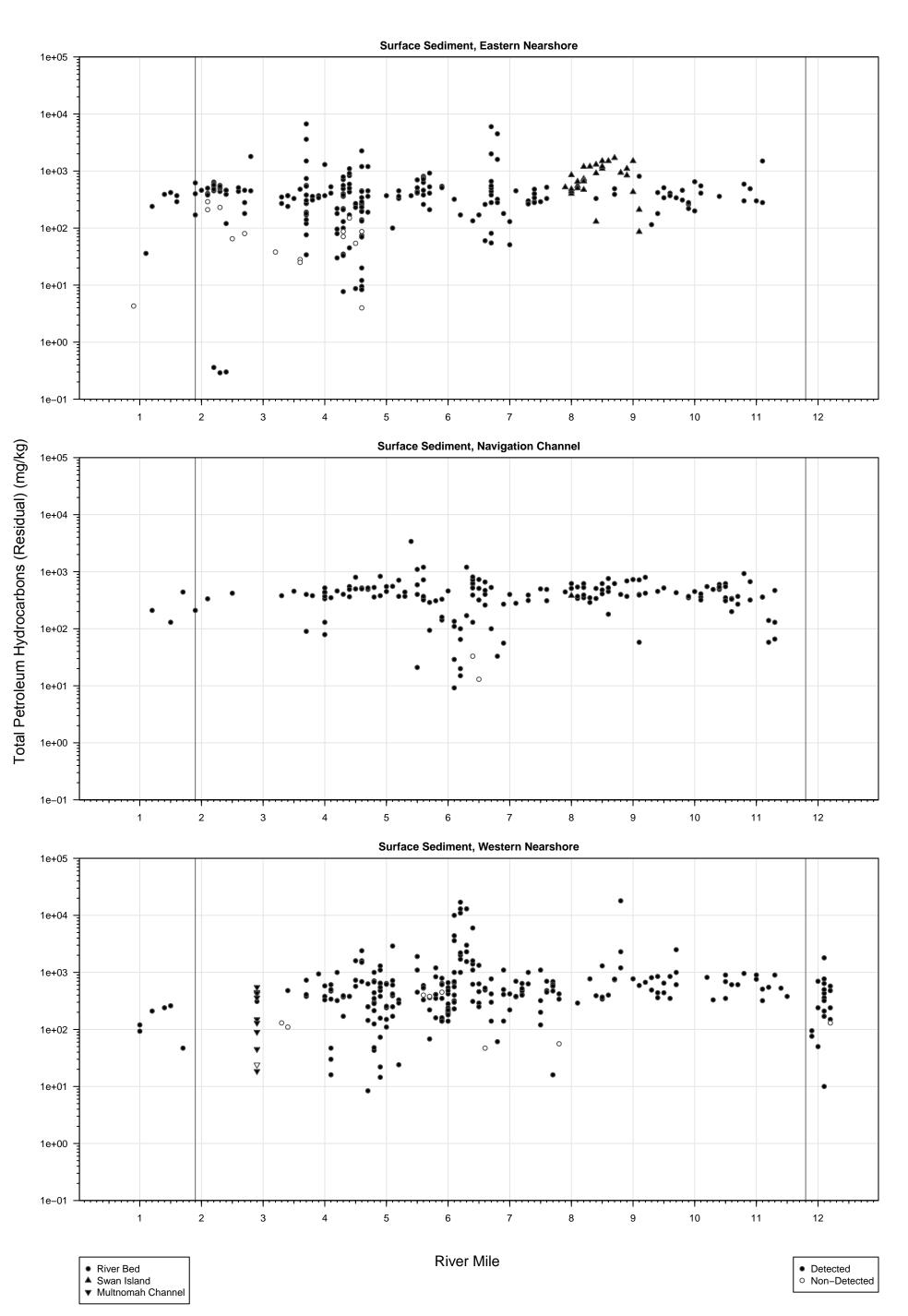


Figure D1.1–49
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Residual)
Concentrations in Surface Sediment, RM 0.8–12.2

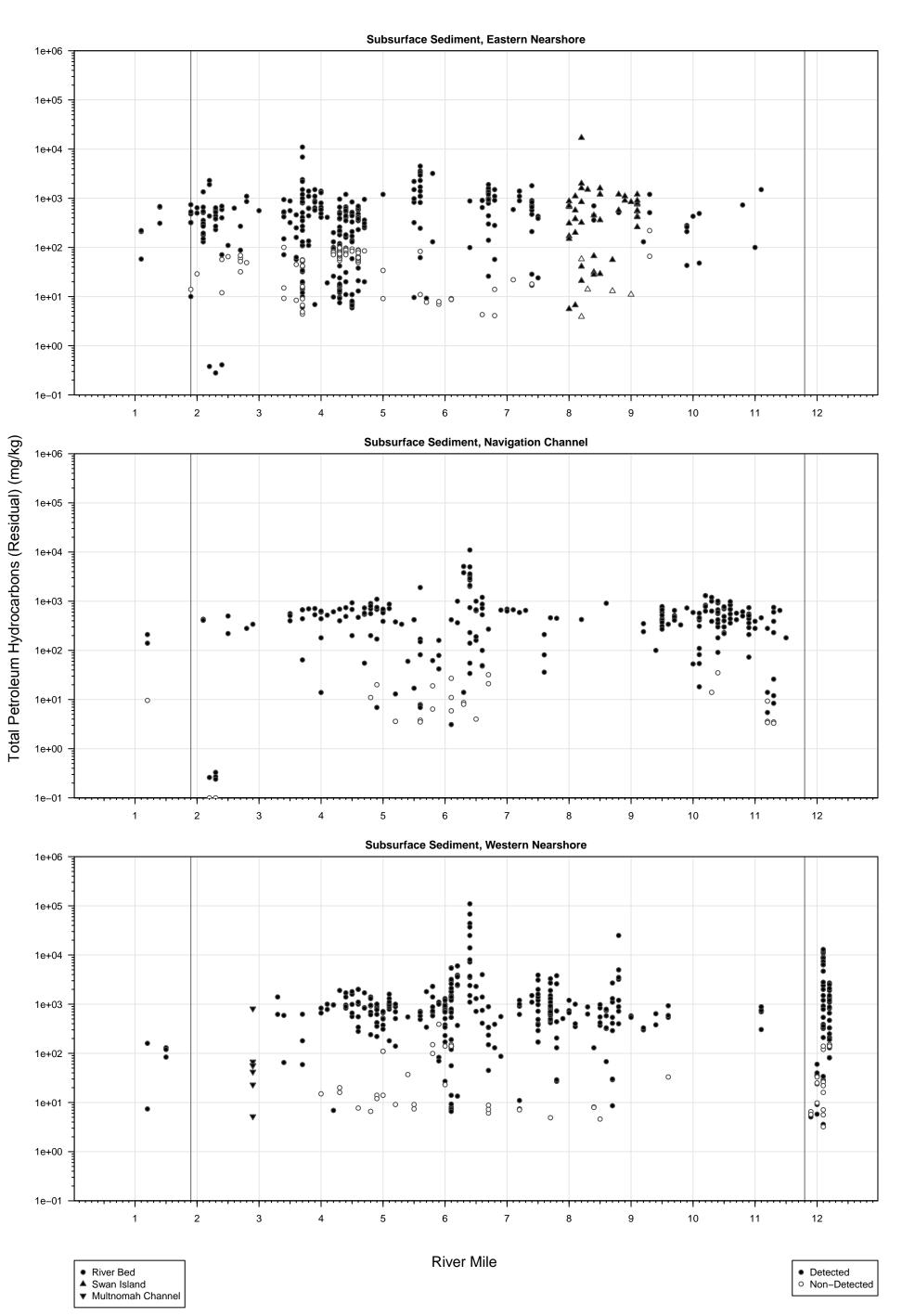


Figure D1.1–50
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Residual)
Concentrations in Subsurface Sediment, RM 0.8–12.2

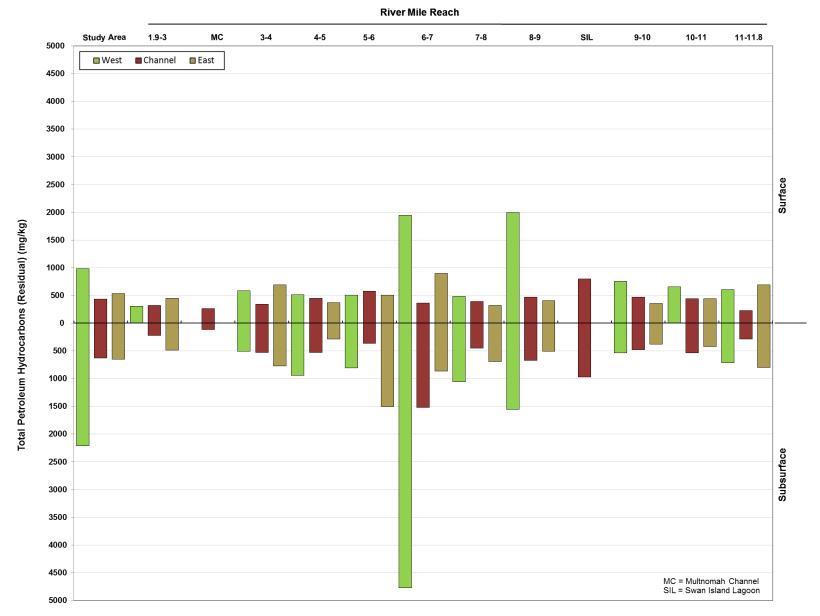
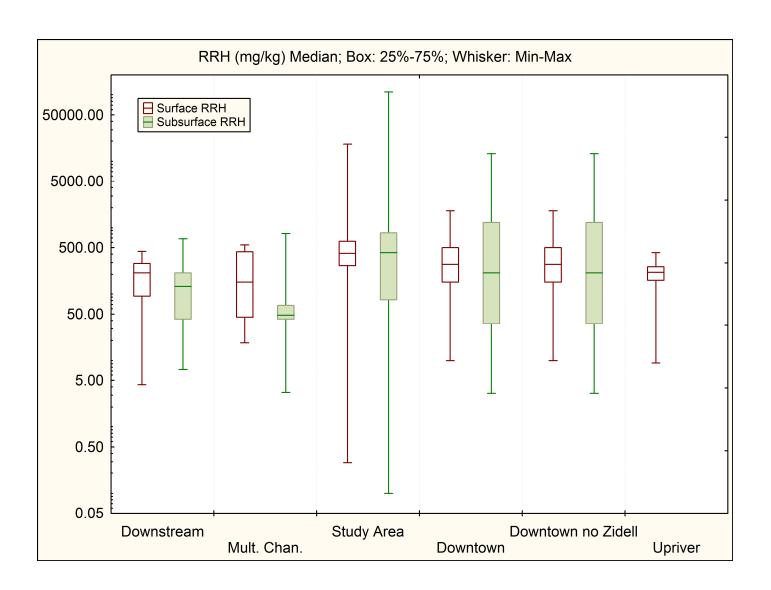


Figure D1.1-51
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Petroleum Hydrocarbon (Residual) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



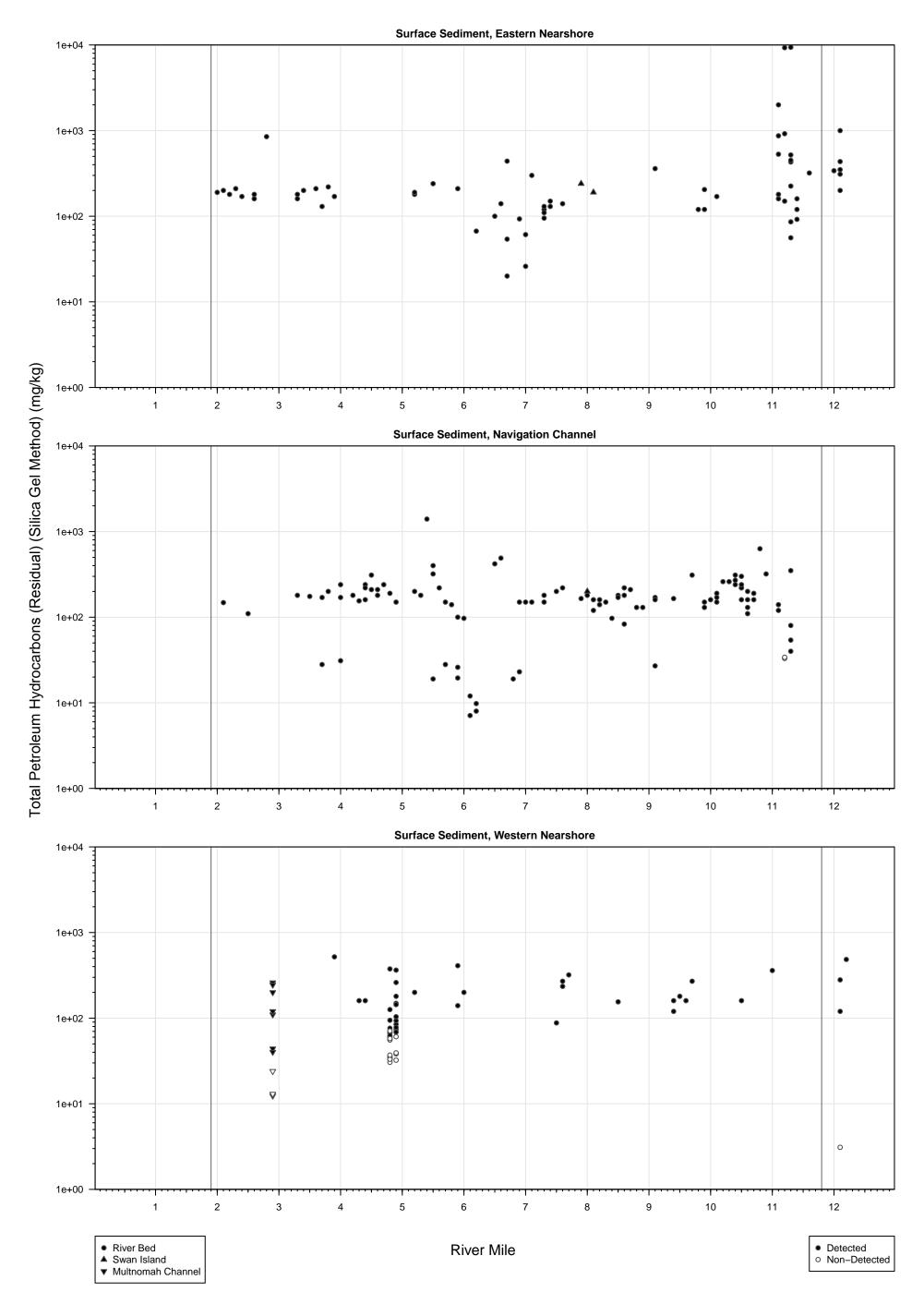


Figure D1.1–53
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Residual) (Silica Gel Method)
Concentrations in Surface Sediment, RM 0.8–12.2

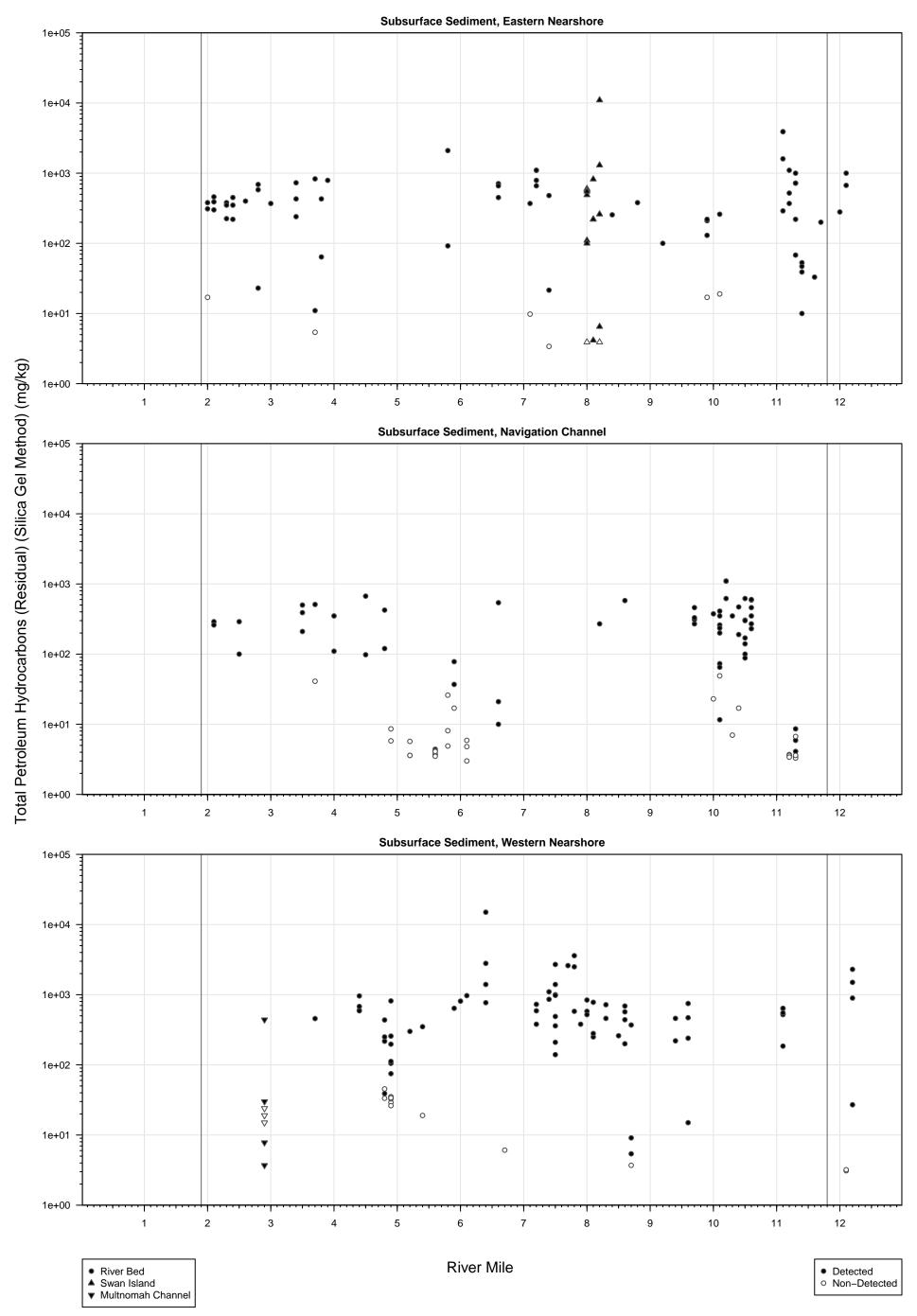
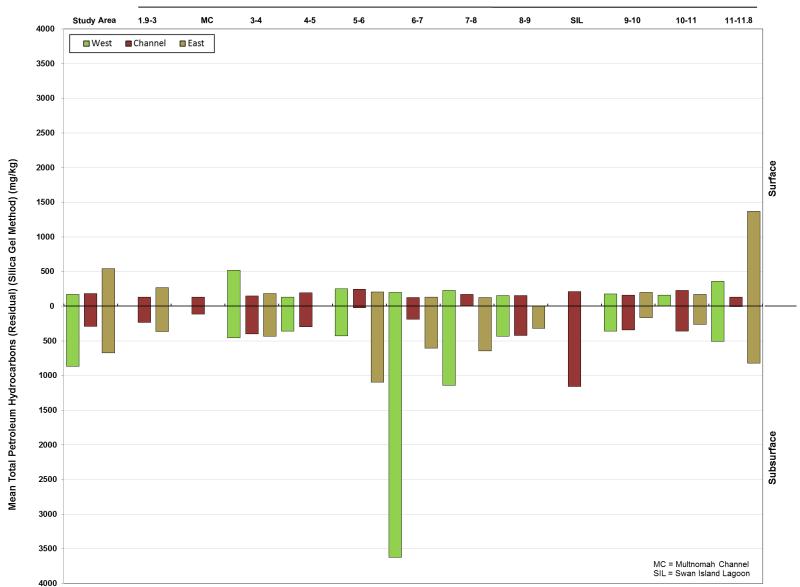
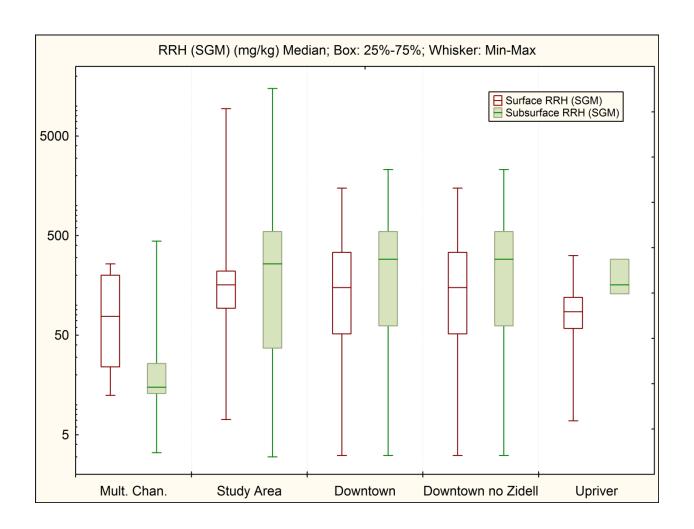


Figure D1.1–54
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Residual) (Silica Gel Method)
Concentrations in Subsurface Sediment, RM 0.8–12.2



**River Mile Reach** 

Figure D1.1-55
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Petroleum Hydrocarbon (Residual)
(Silica Gel Method) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



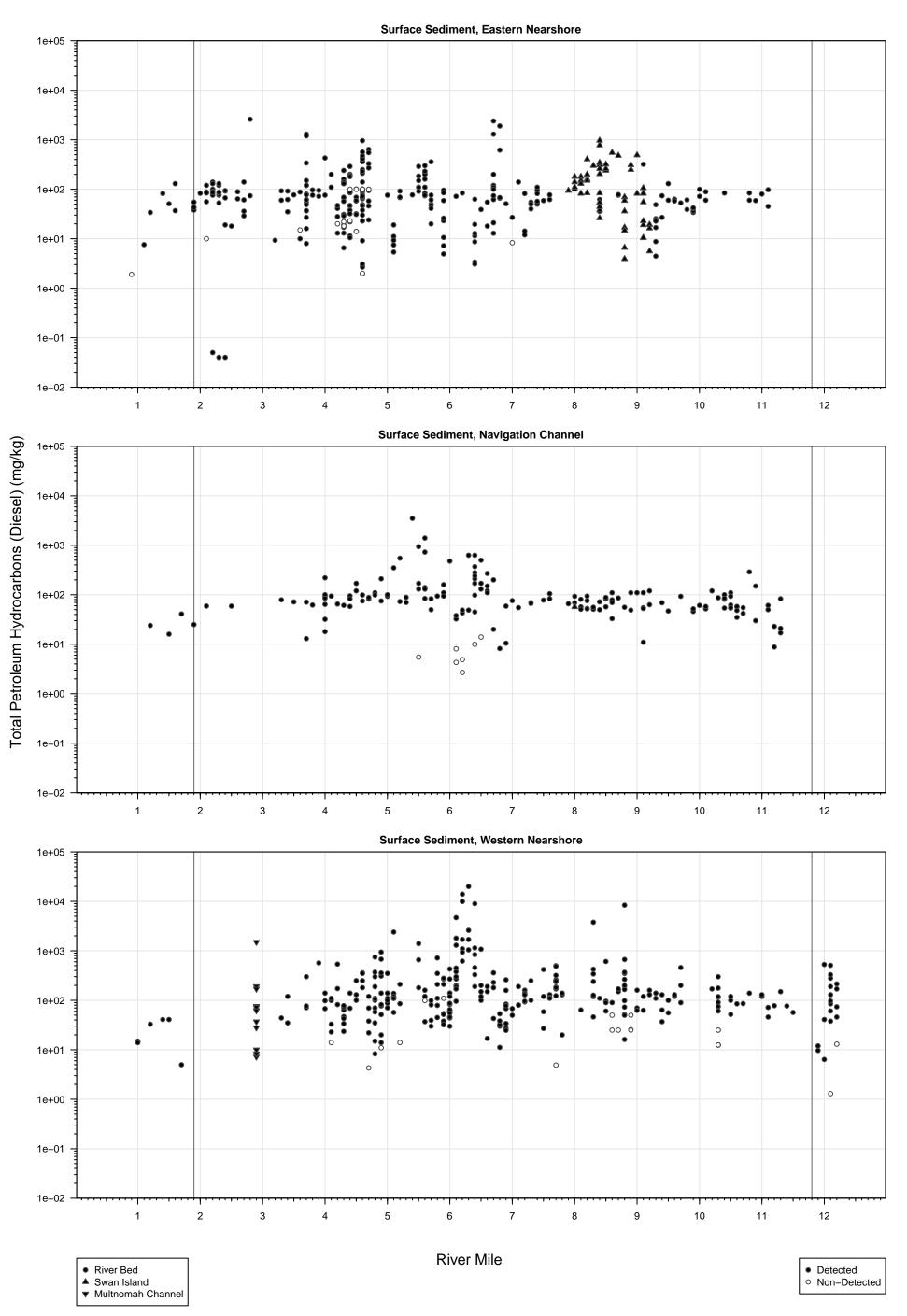


Figure D1.1–57
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Diesel)
Concentrations in Surface Sediment, RM 0.8–12.2

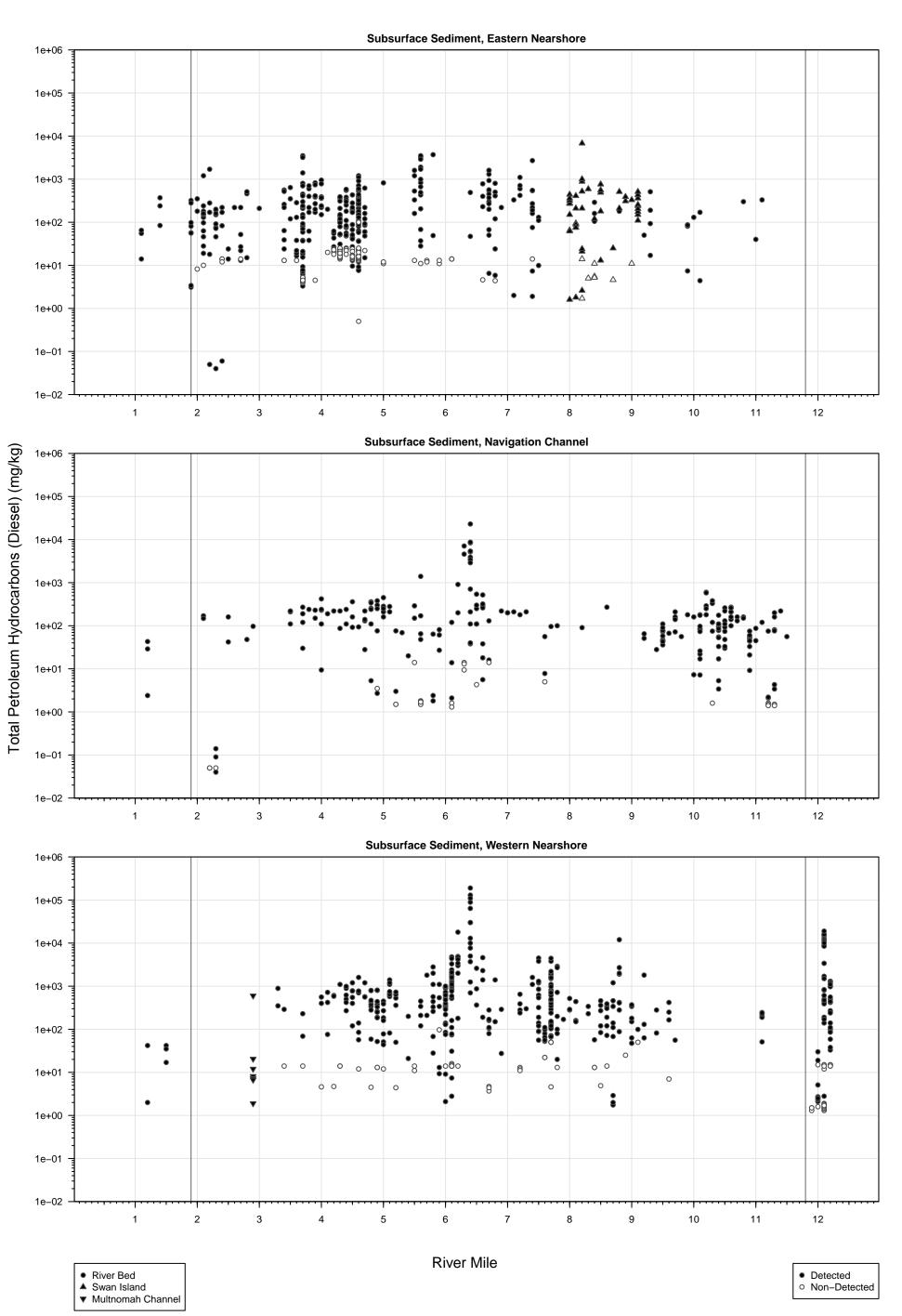


Figure D1.1–58
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Diesel)
Concentrations in Subsurface Sediment, RM 0.8–12.2

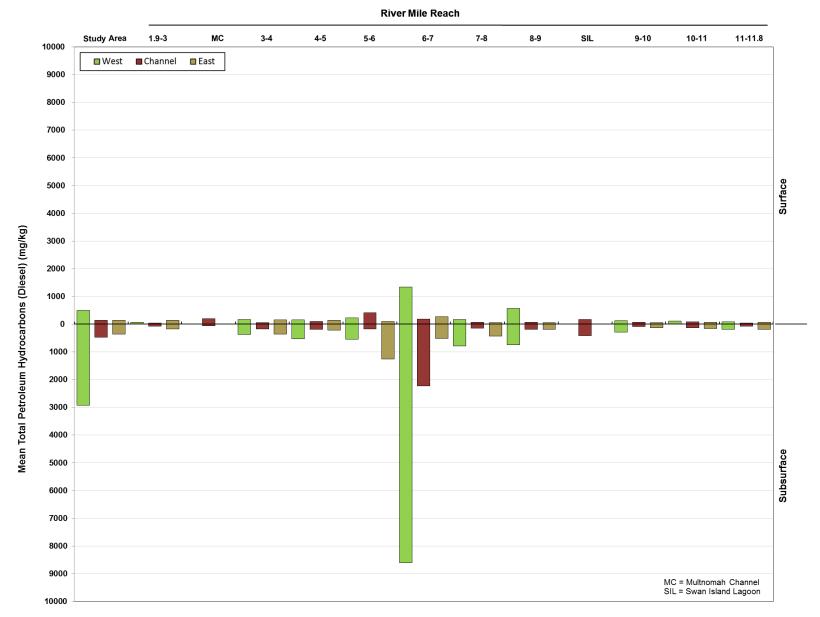
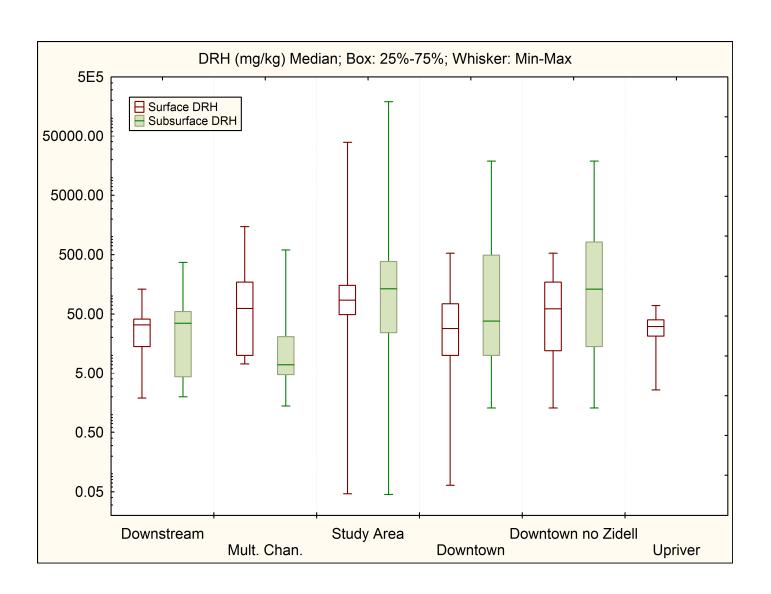


Figure D1.1-59
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Petroleum Hydrocarbon (Diesel) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



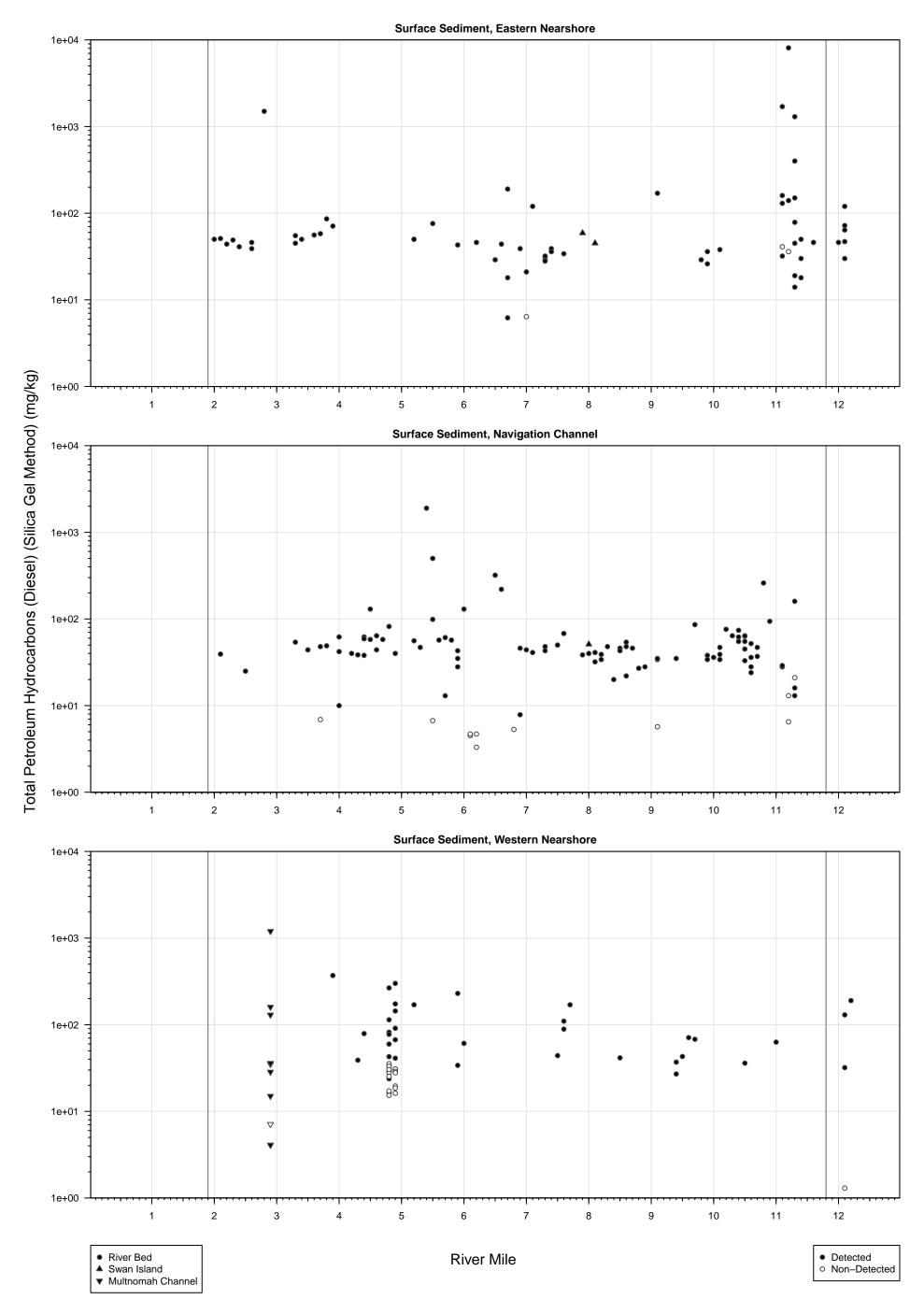


Figure D1.1–61
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method)
Concentrations in Surface Sediment, RM 0.8–12.2

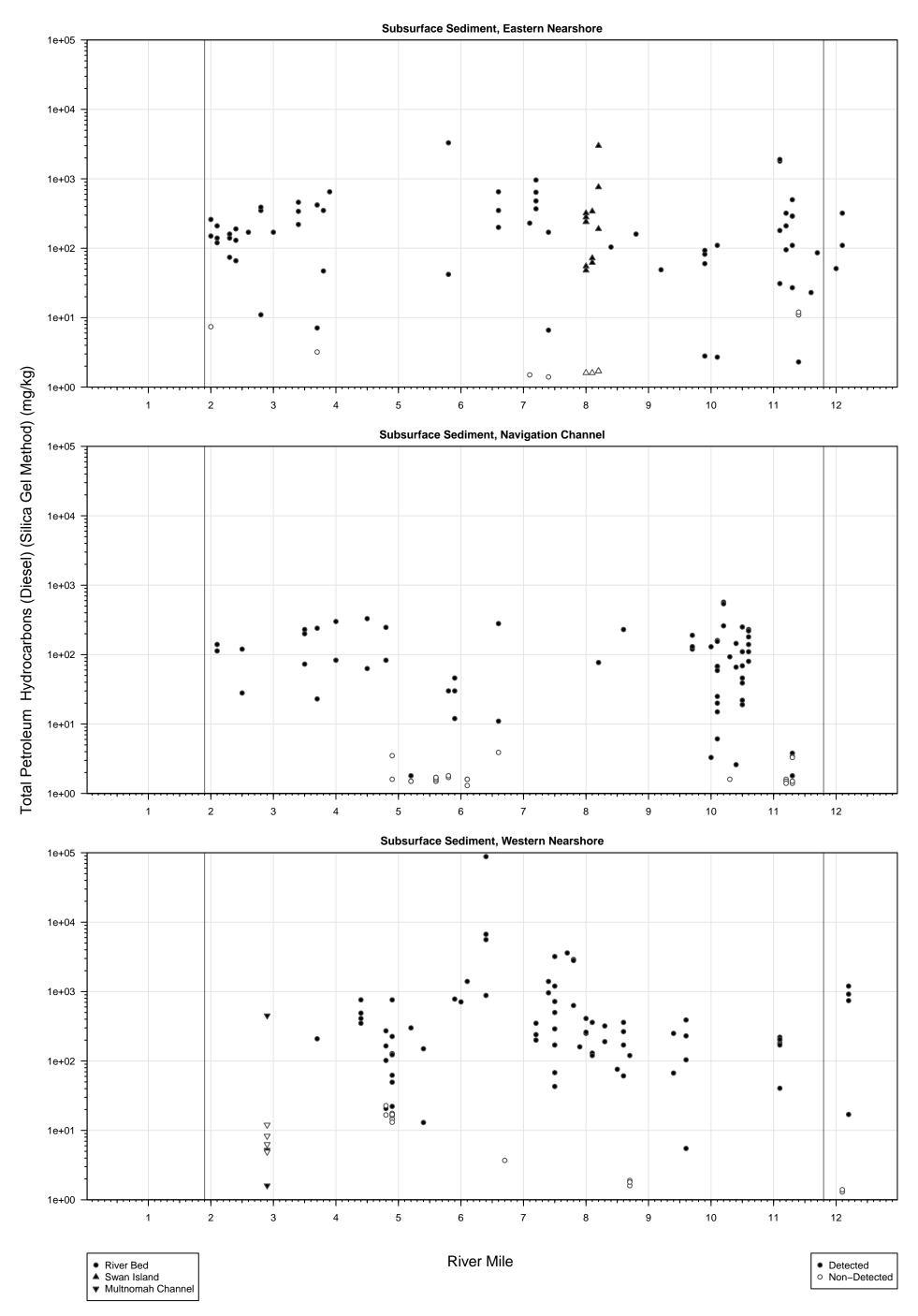


Figure D1.1–62
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method)
Concentrations in Subsurface Sediment, RM 0.8–12.2

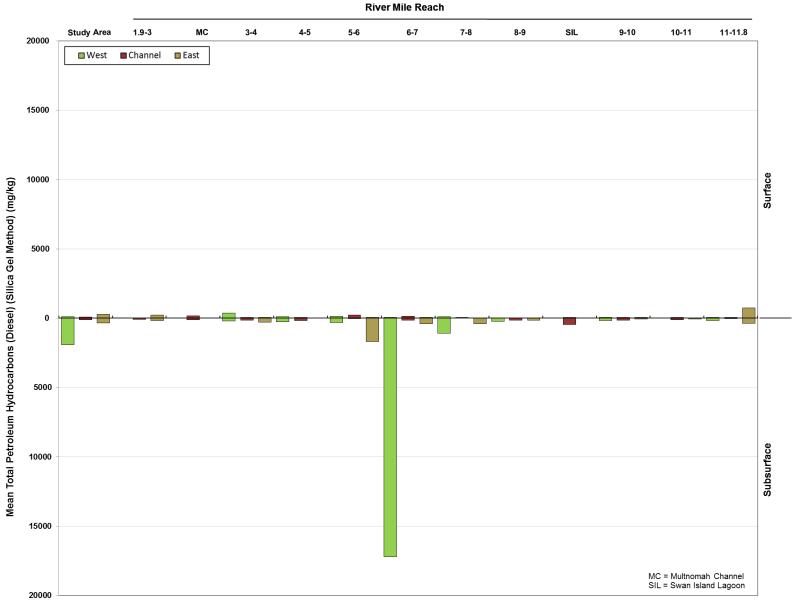
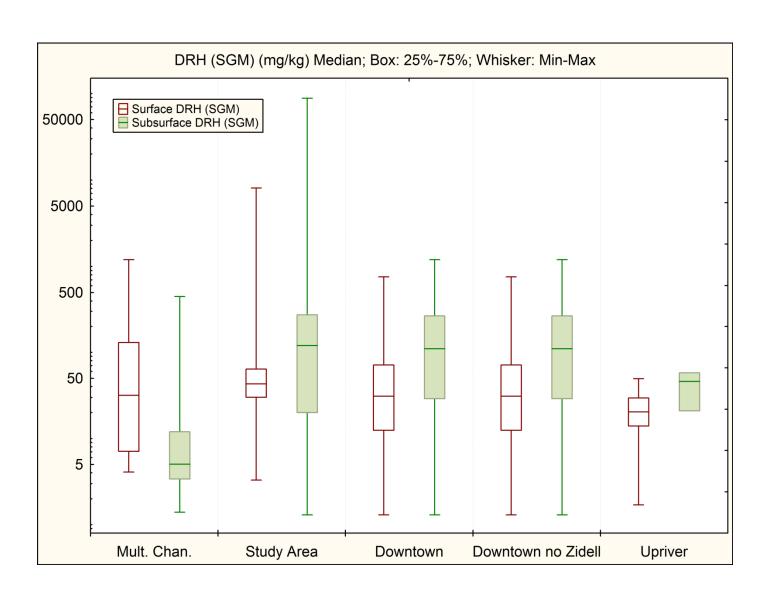


Figure D1.1-63
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Petroleum Hydrocarbon (Diesel)
(Silica Gel Method) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



Occasionally, small sample sizes (e.g., N<3) or data sets with multiple duplicate values can result in min/max whiskers that coincide with the upper/lower boundaries of the box plot (i.e., 25<sup>th</sup> and 75<sup>th</sup> percentiles). In these cases, no whiskers will be visible on the box plot.

## Figure D1.1-64 Portland Harbor RI/FS Remedial Investigation Report Box-Whisker Plot of Total Petroleum Hydrocarbon (Diesel) (Silica Gel Method) in Surface and Subsurface Sediment by River Reach

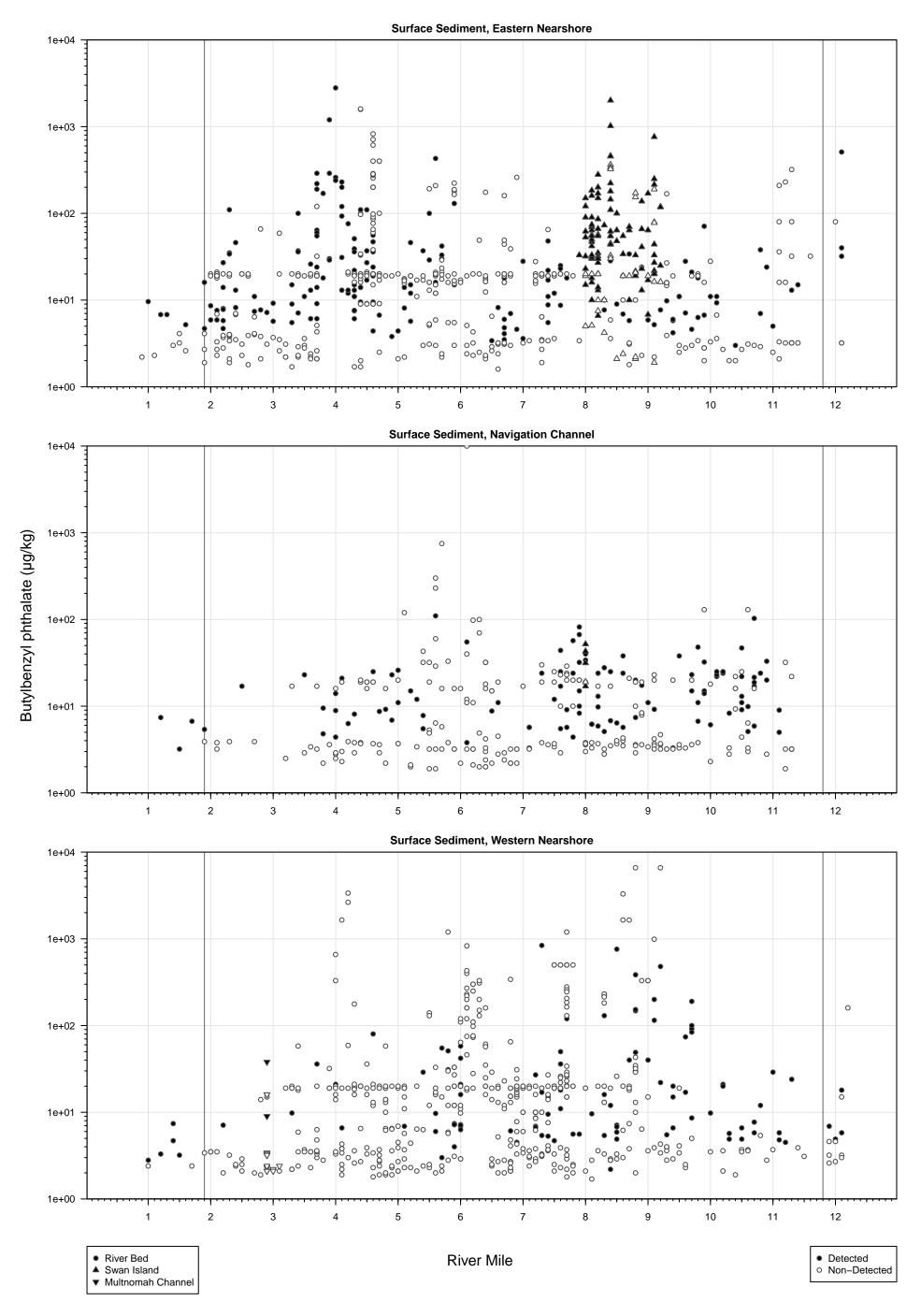


Figure D1.1–65
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Butylbenzyl phthalate
Concentrations in Surface Sediment, RM 0.8–12.2

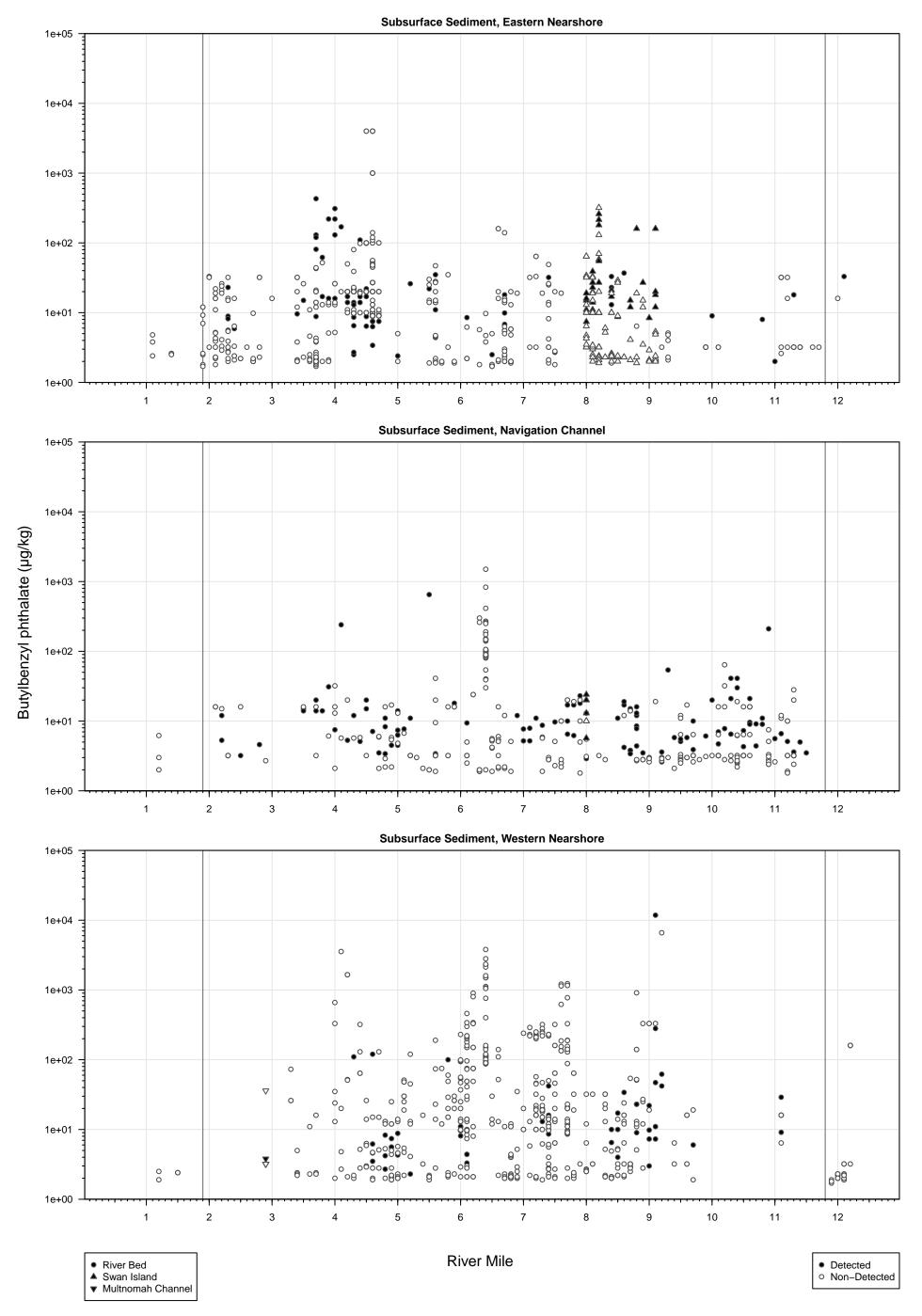


Figure D1.1–66
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Butylbenzyl phthalate
Concentrations in Subsurface Sediment, RM 0.8–12.2

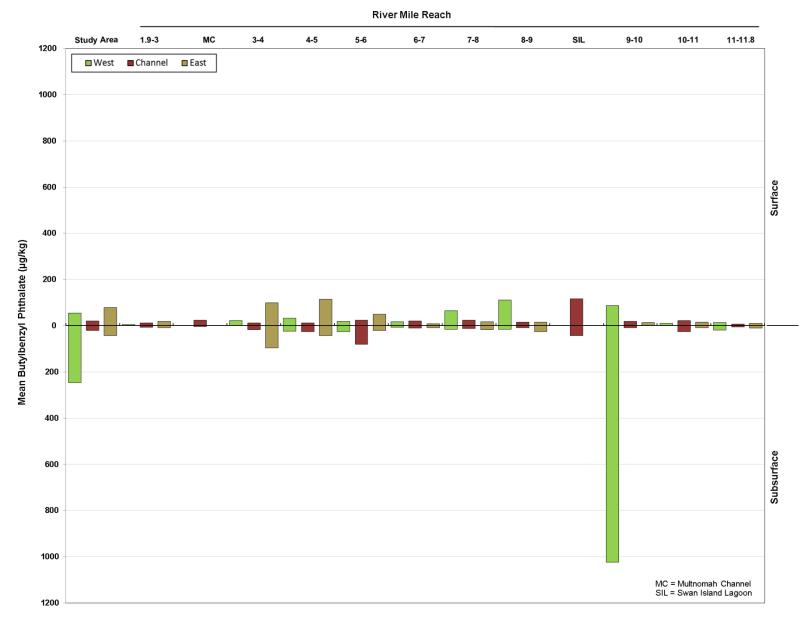
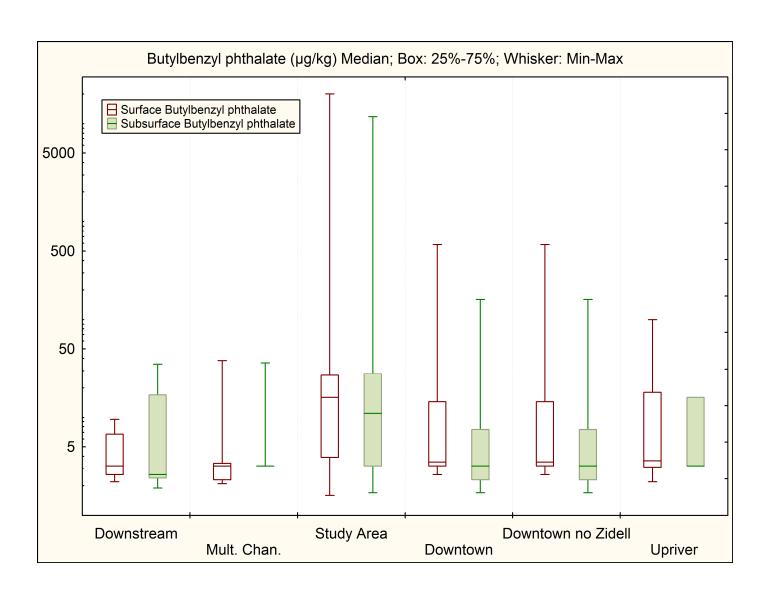


Figure D1.1-67
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Butylbenzyl phthalate Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



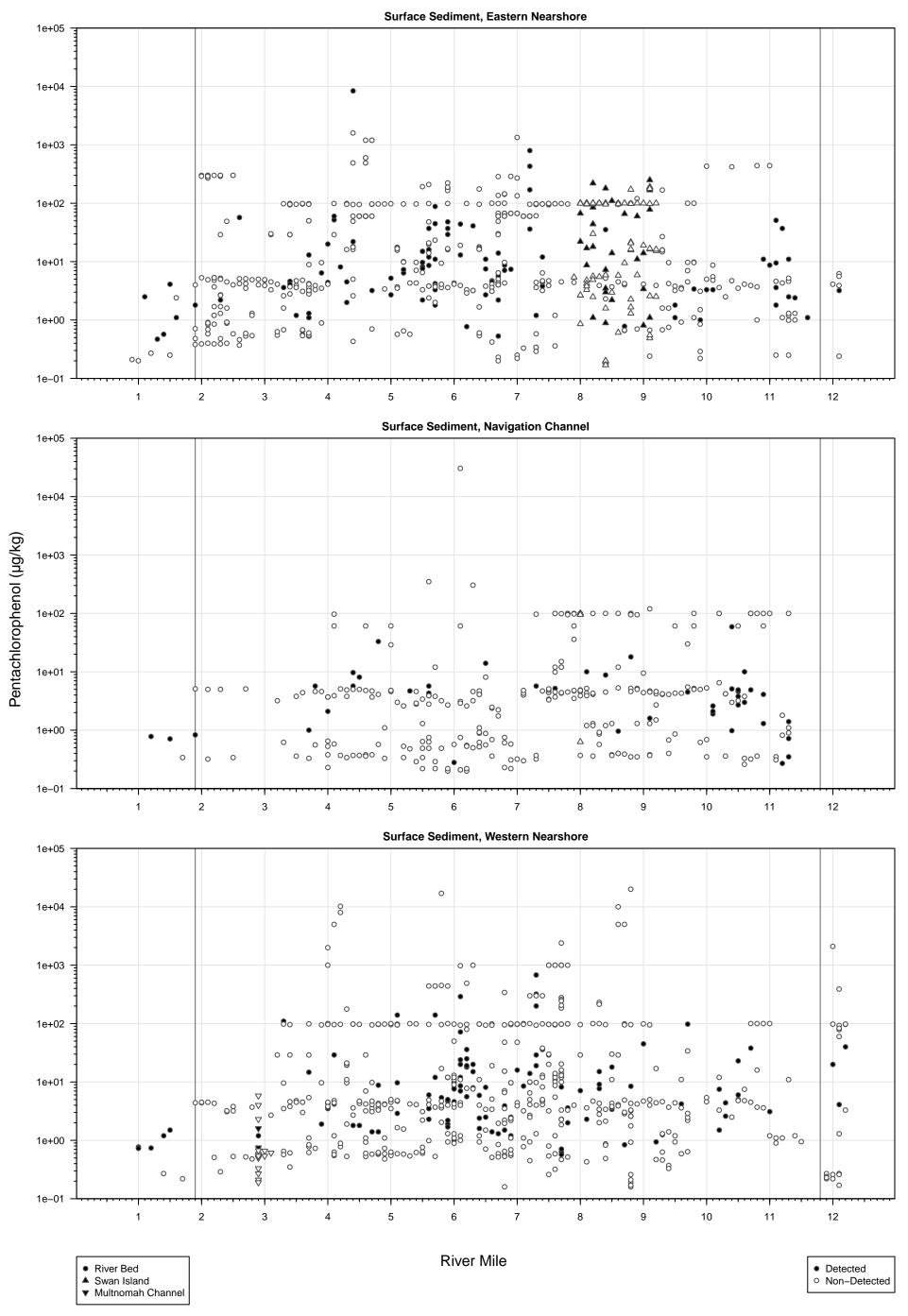


Figure D1.1–69
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Pentachlorophenol
Concentrations in Surface Sediment, RM 0.8–12.2

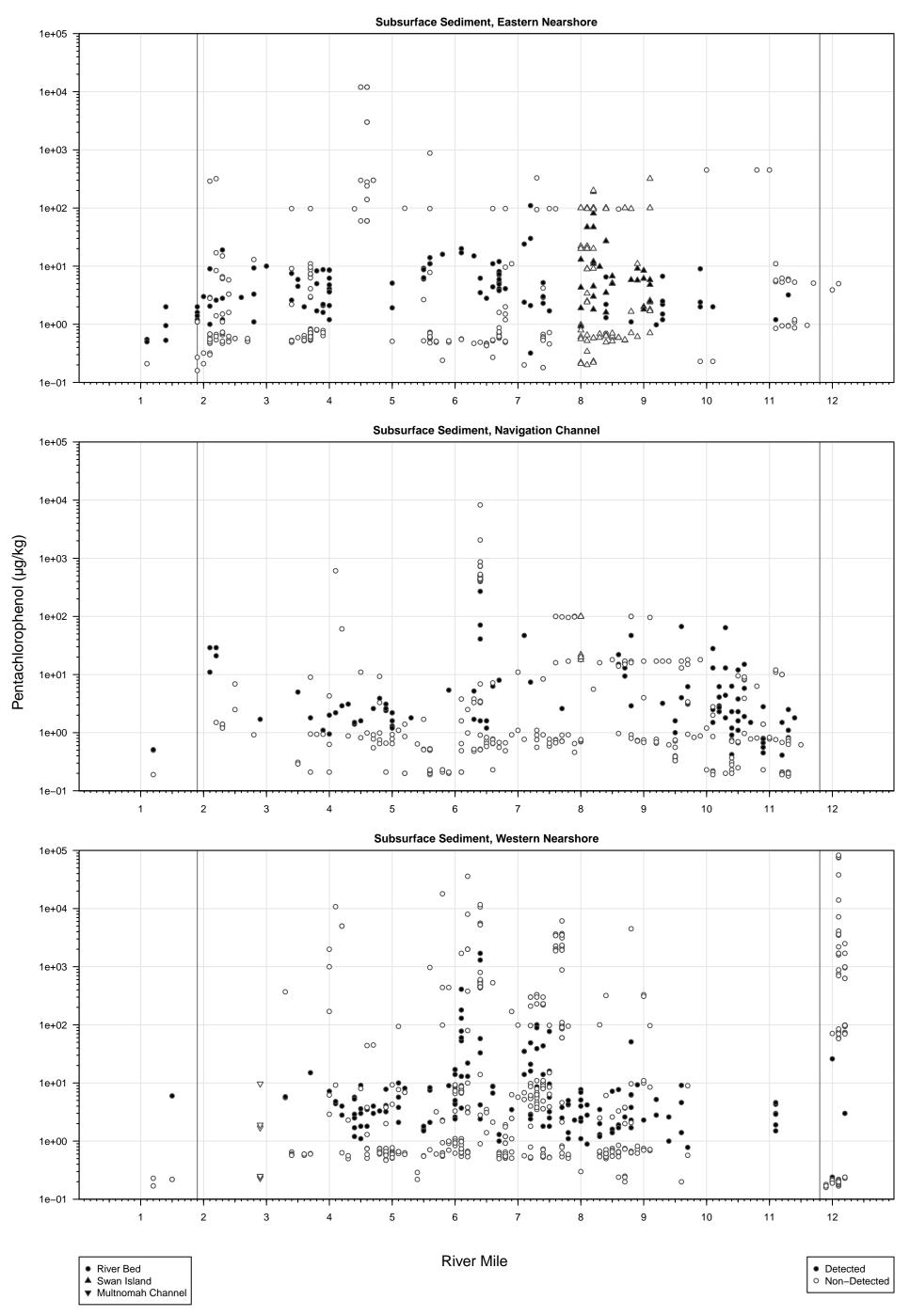


Figure D1.1–70
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Pentachlorophenol
Concentrations in Subsurface Sediment, RM 0.8–12.2

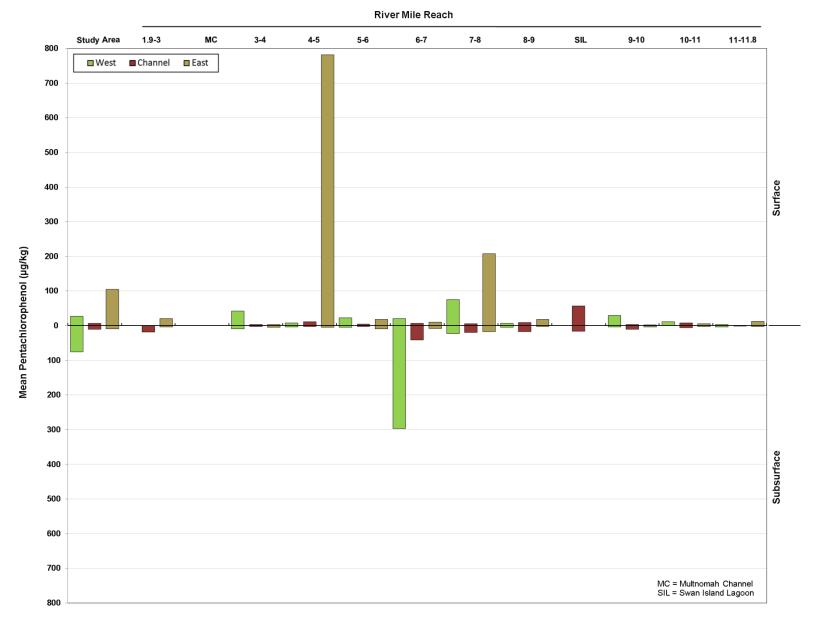
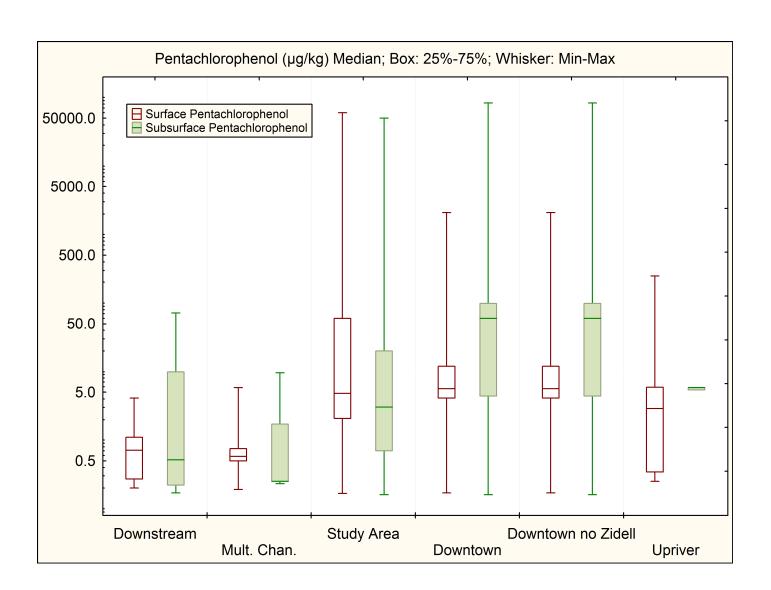


Figure D1.1-71
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Pentachlorophenol Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



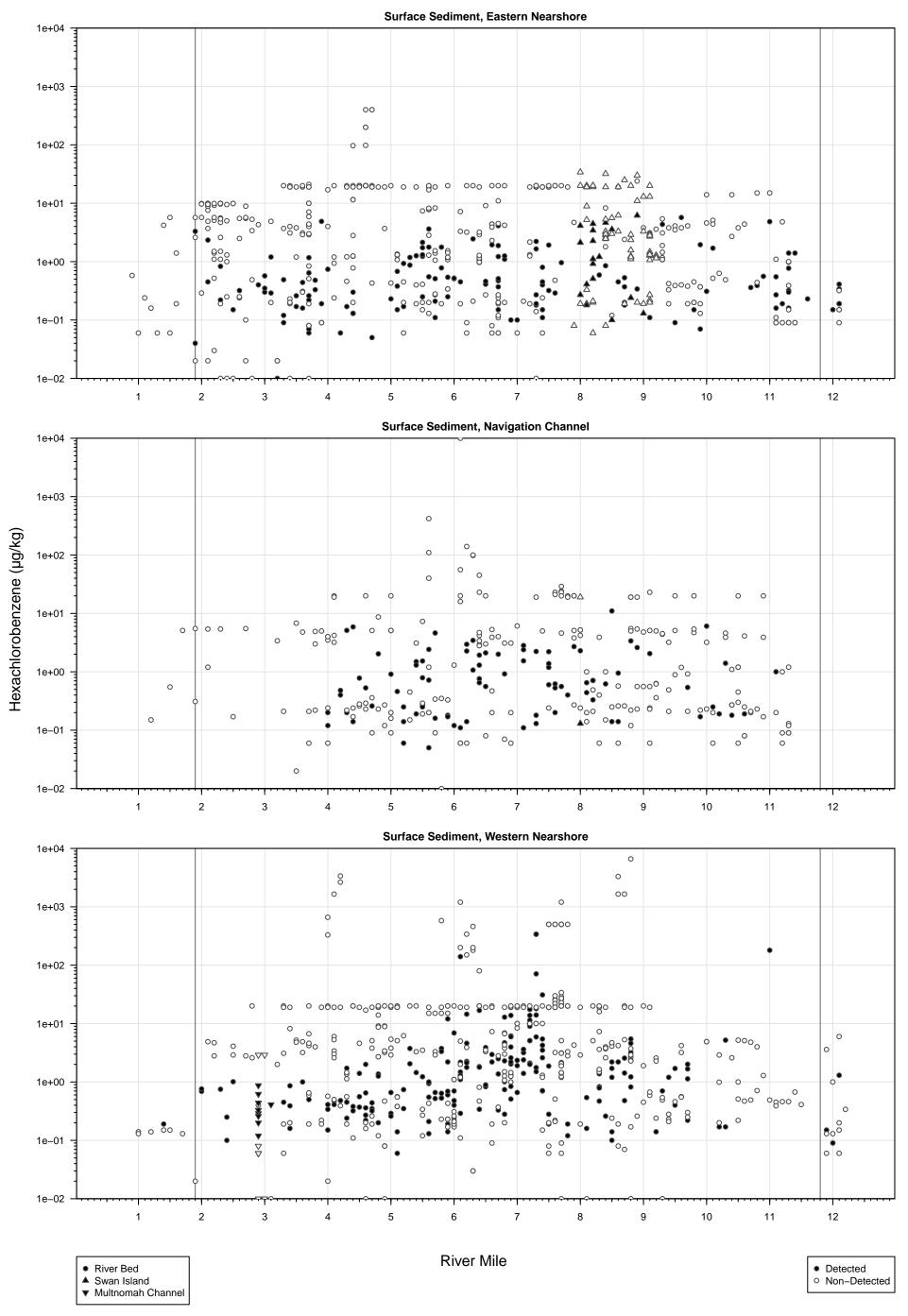


Figure D1.1–73

Portland Harbor RI/FS

Remedial Investigation Report

Scatter Plot of Hexachlorobenzene

Concentrations in Surface Sediment, RM 0.8–12.2

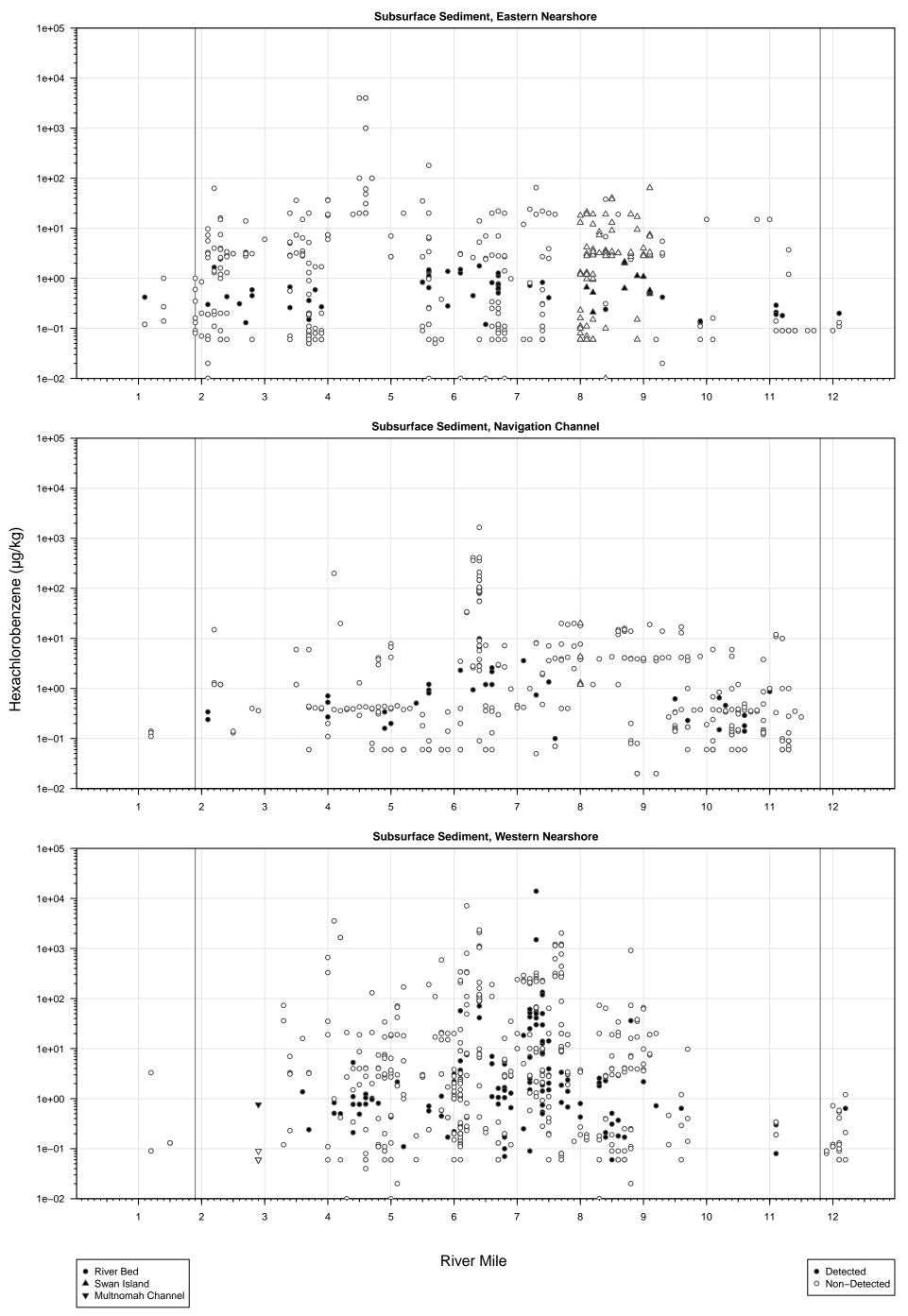


Figure D1.1–74
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Hexachlorobenzene
Concentrations in Subsurface Sediment, RM 0.8–12.2

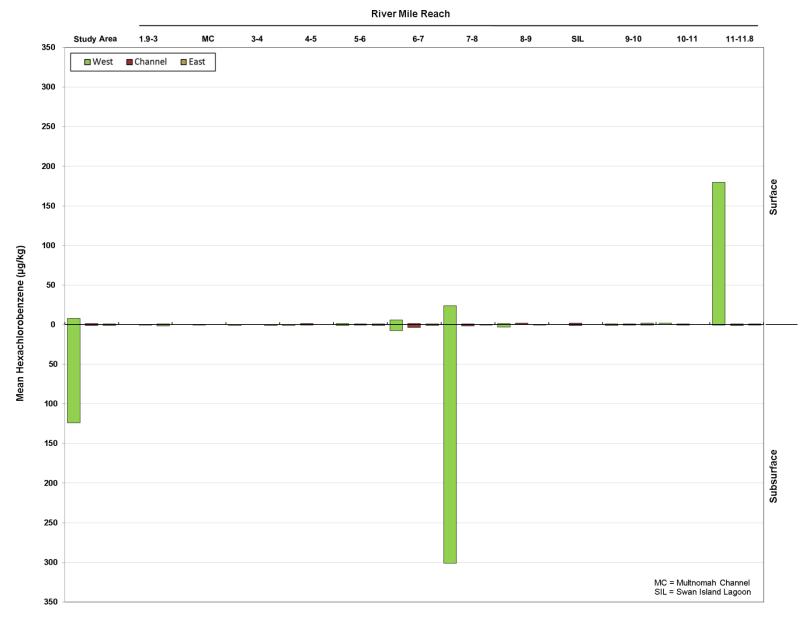
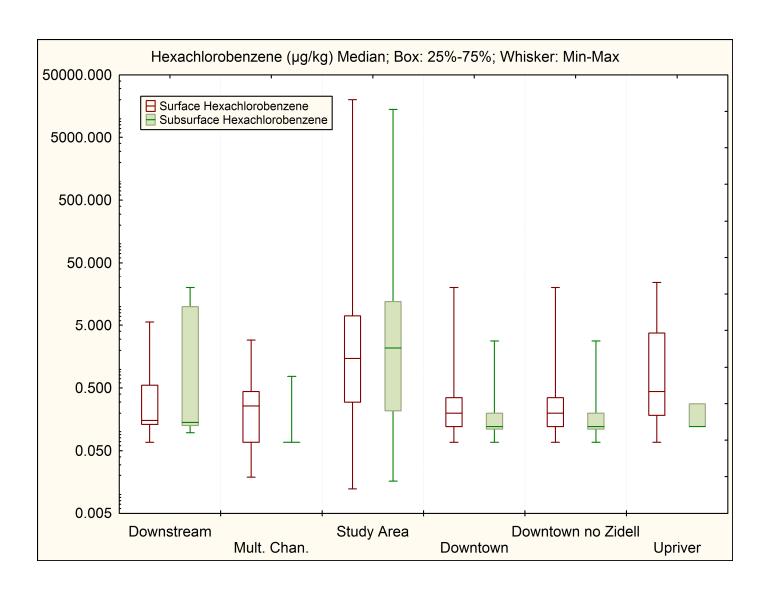


Figure D1.1-75
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Hexachlorobenzene Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



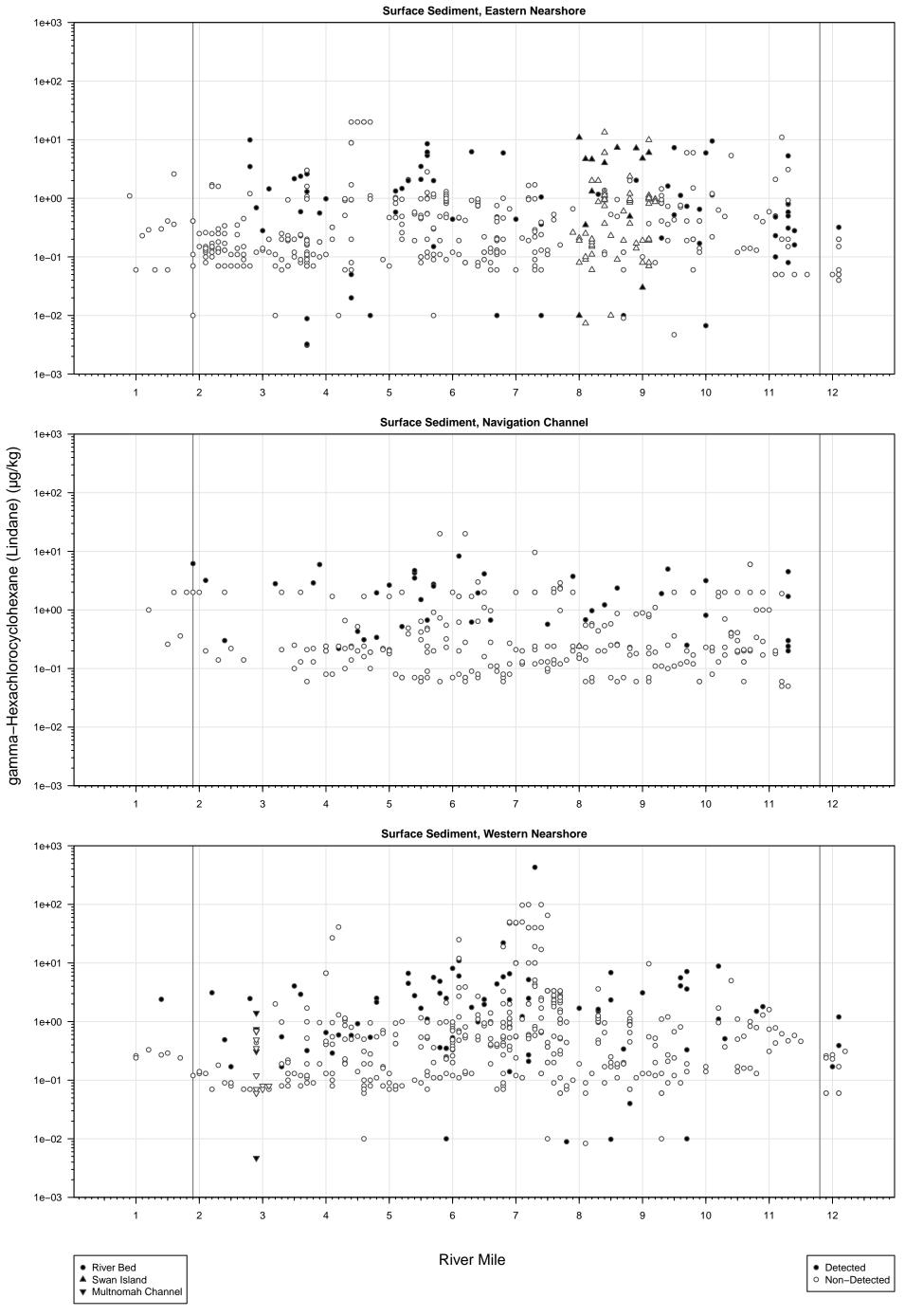


Figure D1.1–77
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of gamma–Hexachlorocyclohexane (Lindane)
Concentrations in Surface Sediment, RM 0.8–12.2

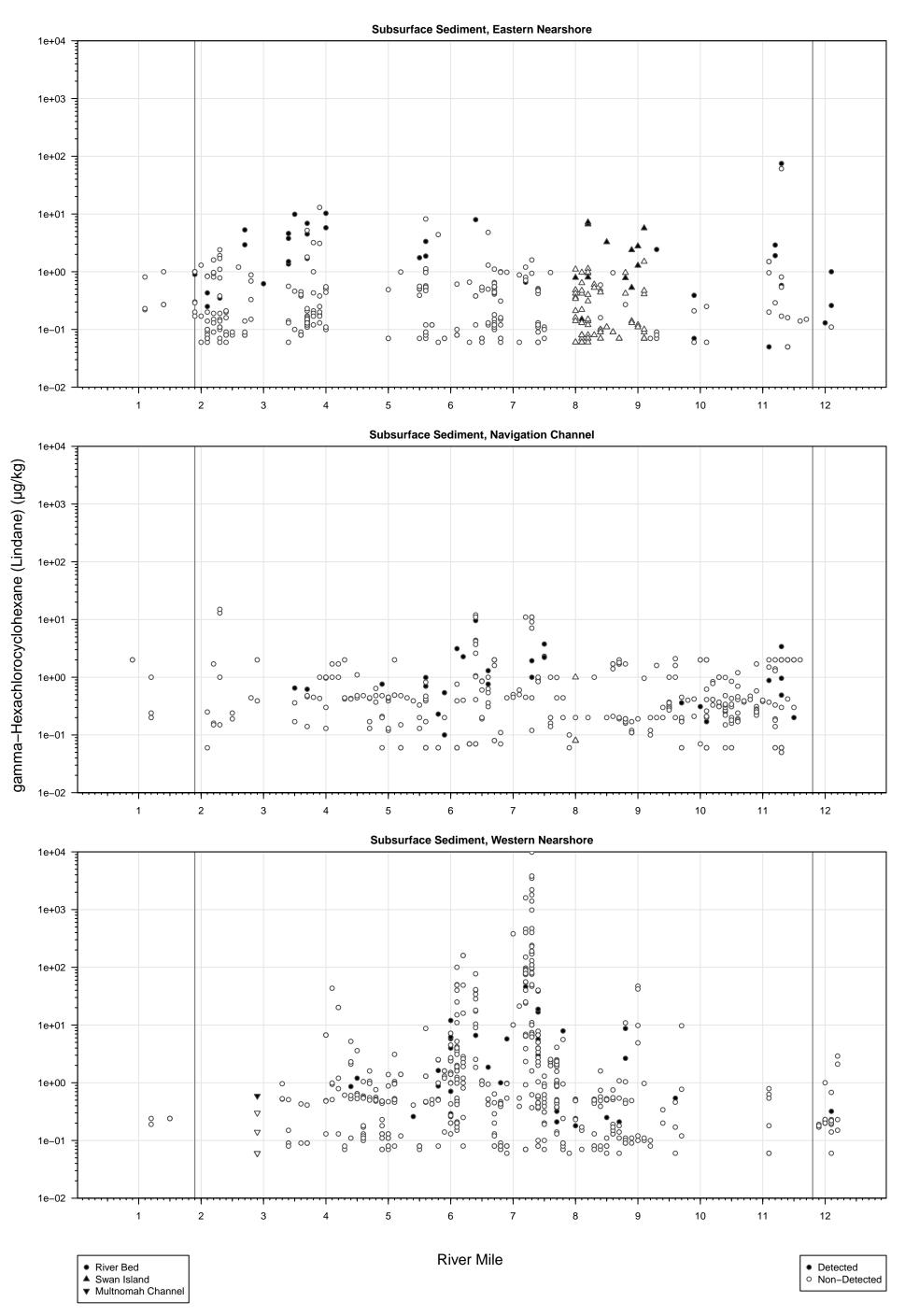
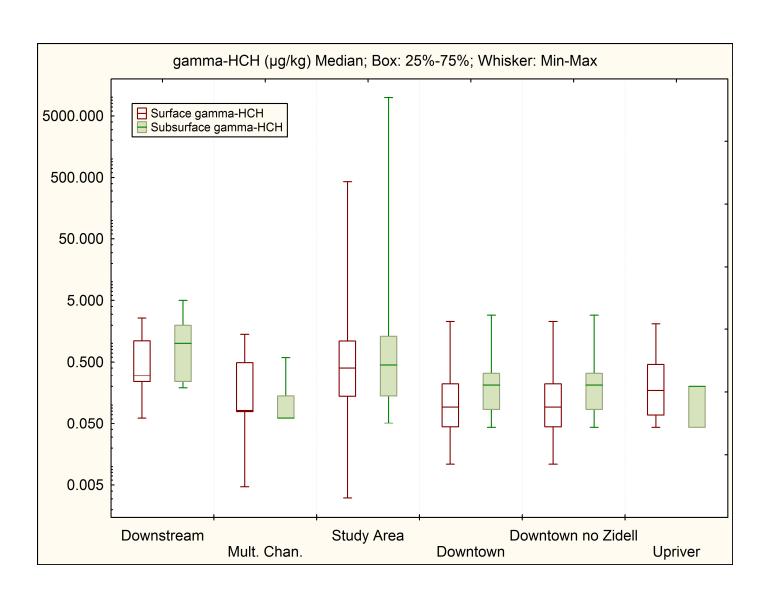


Figure D1.1–78
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of gamma–Hexachlorocyclohexane (Lindane)
Concentrations in Subsurface Sediment, RM 0.8–12.2



Figure D1.1-79
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean gamma-Hexachlorocyclohexane (Lindane) Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



Occasionally, small sample sizes (e.g., N<3) or data sets with multiple duplicate values can result in min/max whiskers that coincide with the upper/lower boundaries of the box plot (i.e.,  $25^{th}$  and  $75^{th}$  percentiles). In these cases, no whiskers will be visible on the box plot.

# Figure D1.1-80 Portland Harbor RI/FS Remedial Investigation Report Box-Whisker Plot of gamma-Hexachlorocyclohexane (Lindane) in Surface and Subsurface Sediment by River Reach

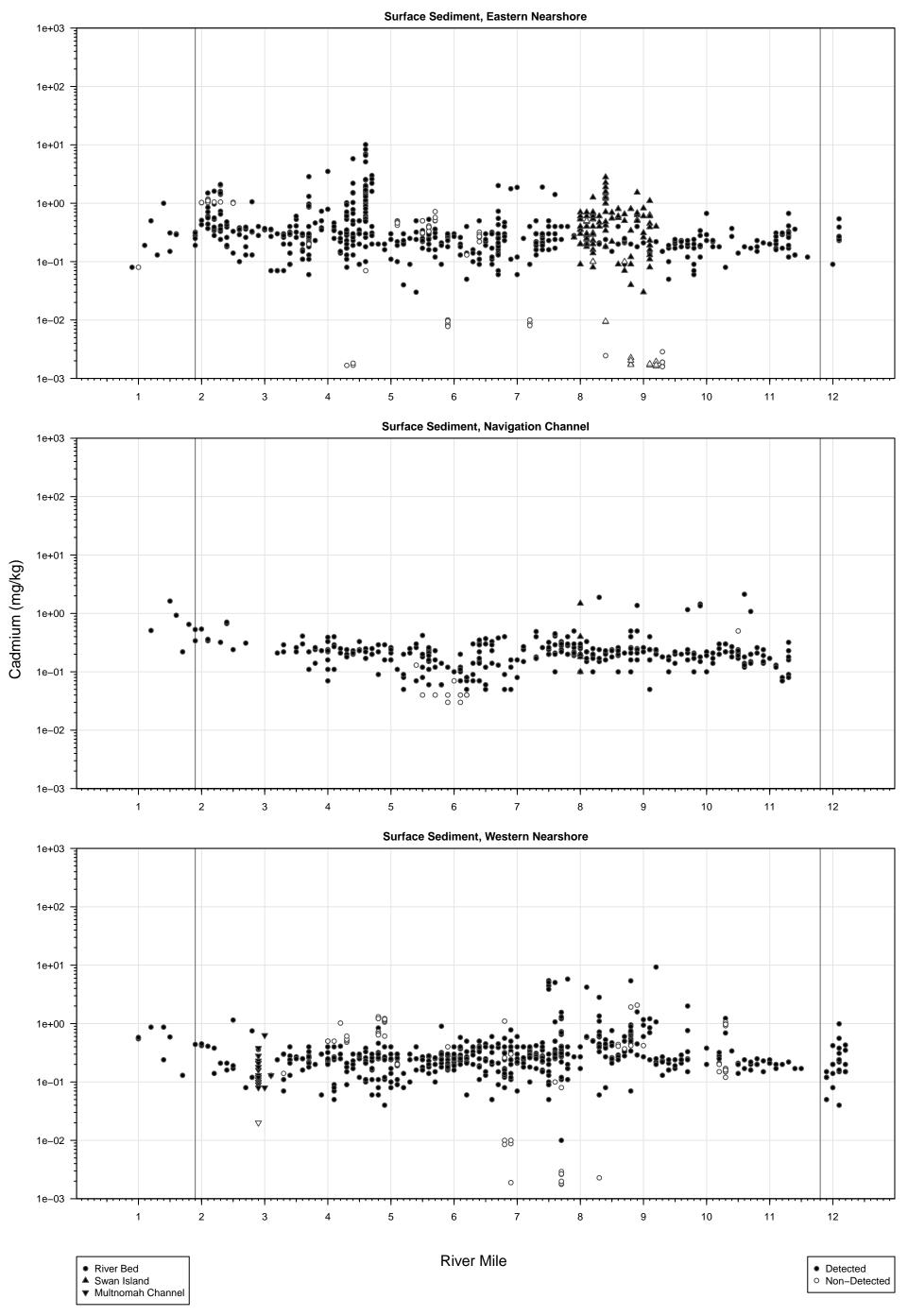


Figure D1.1–81
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Cadmium
Concentrations in Surface Sediment, RM 0.8–12.2

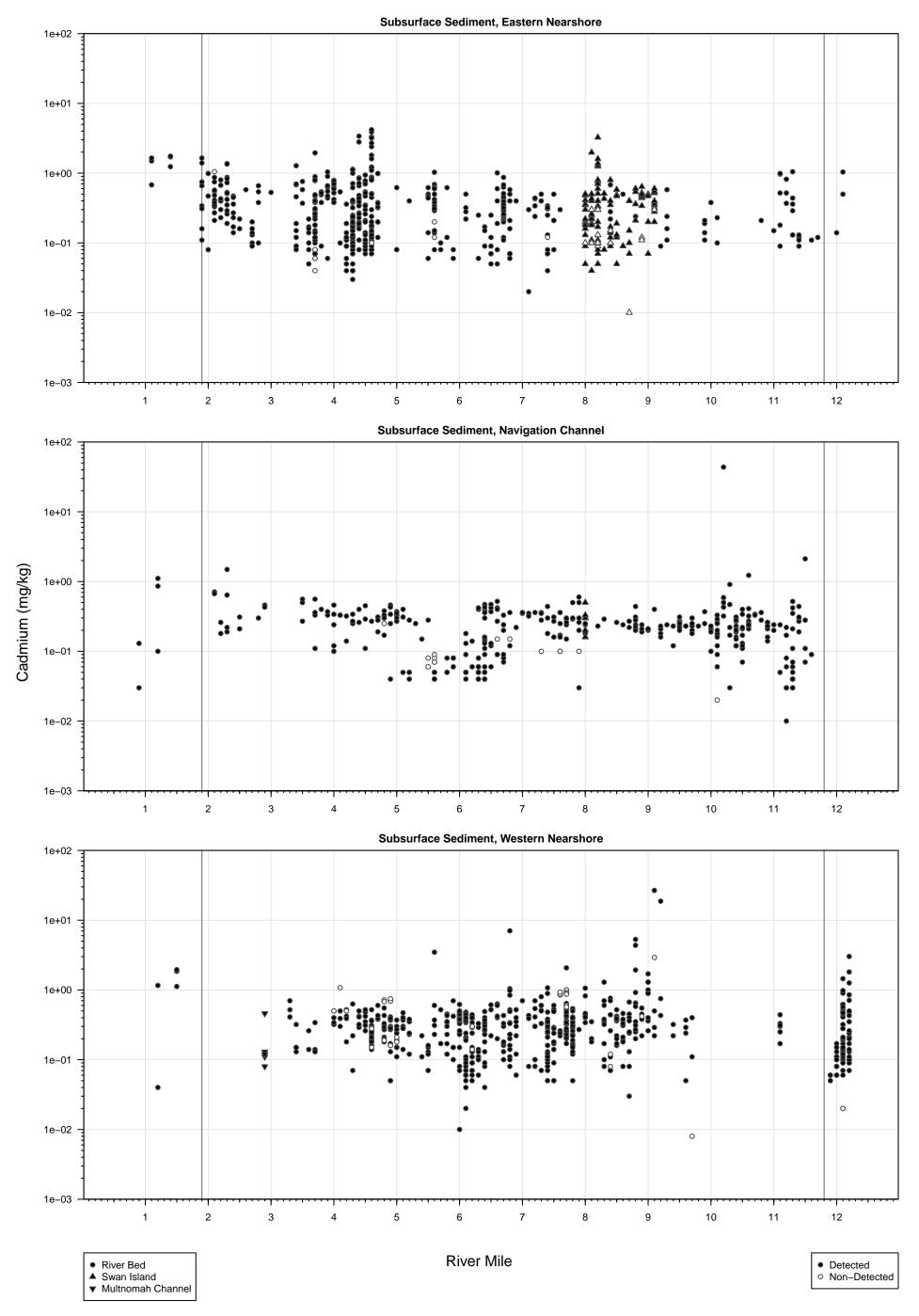
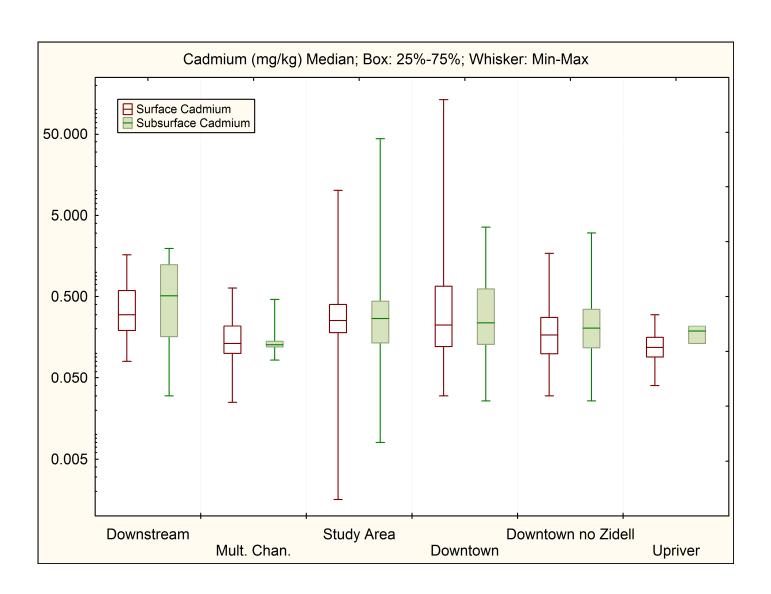


Figure D1.1–82
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Cadmium
Concentrations in Subsurface Sediment, RM 0.8–12.2



Figure D1.1-83
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Cadmium Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



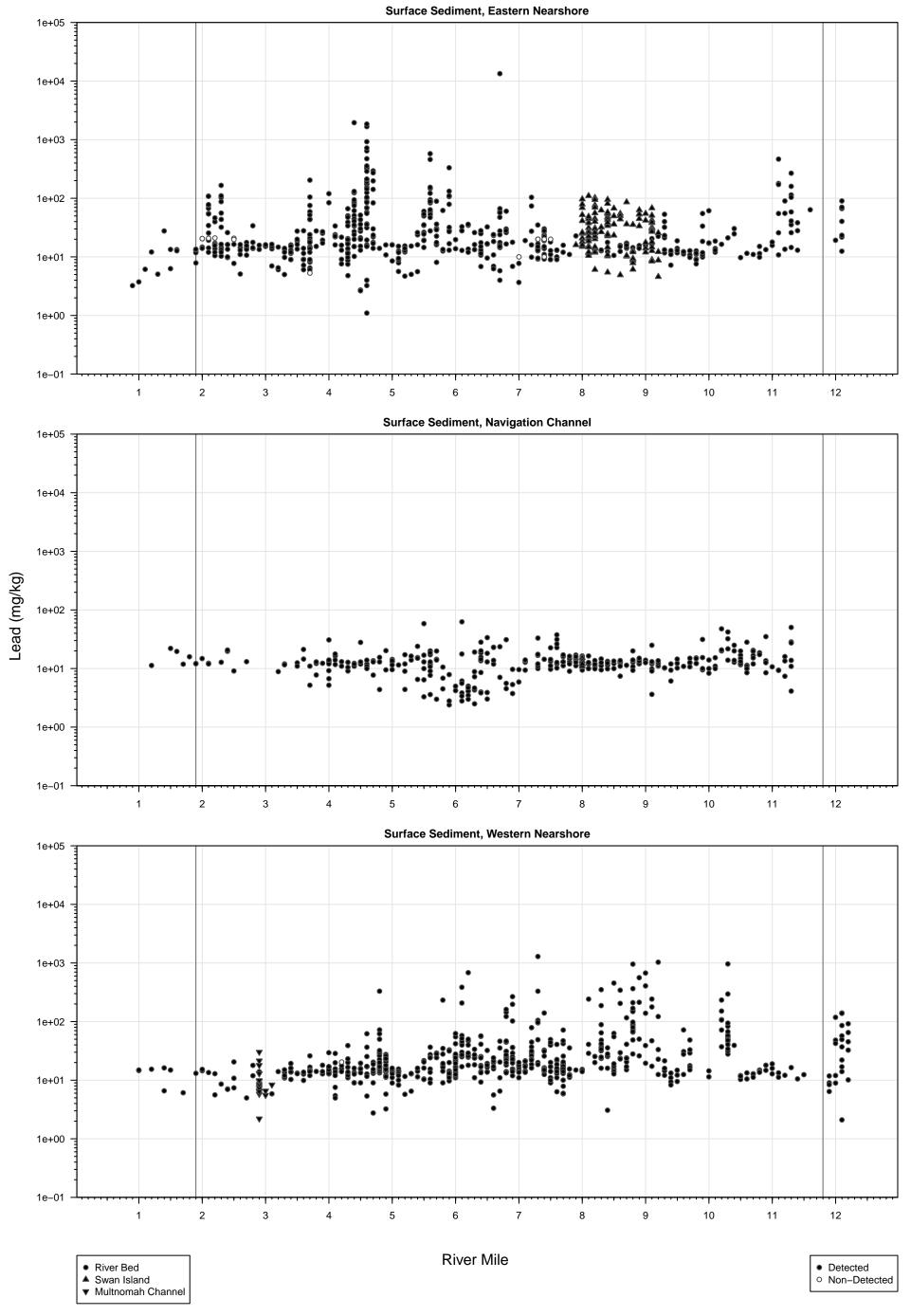


Figure D1.1–85
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Lead
Concentrations in Surface Sediment, RM 0.8–12.2

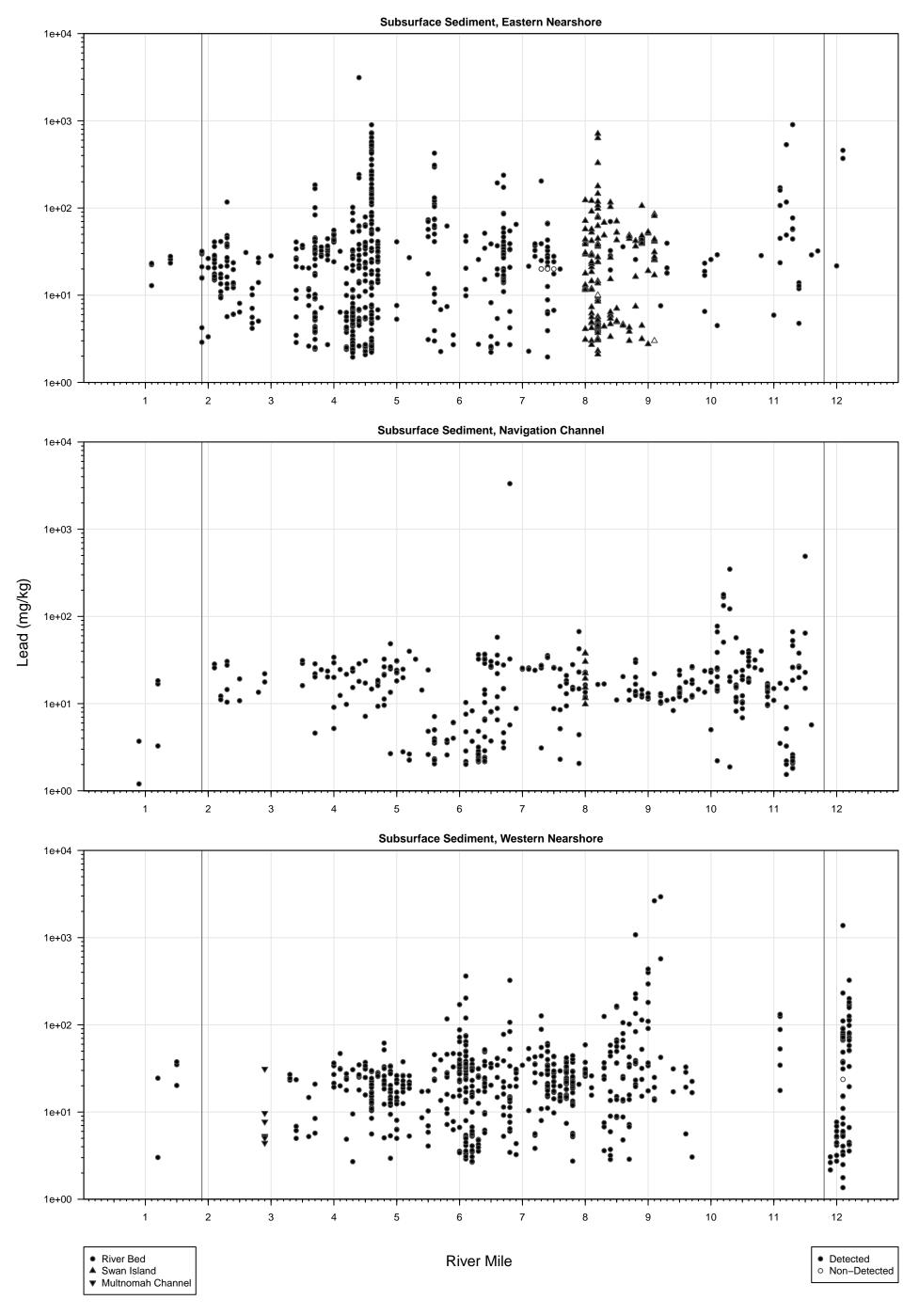
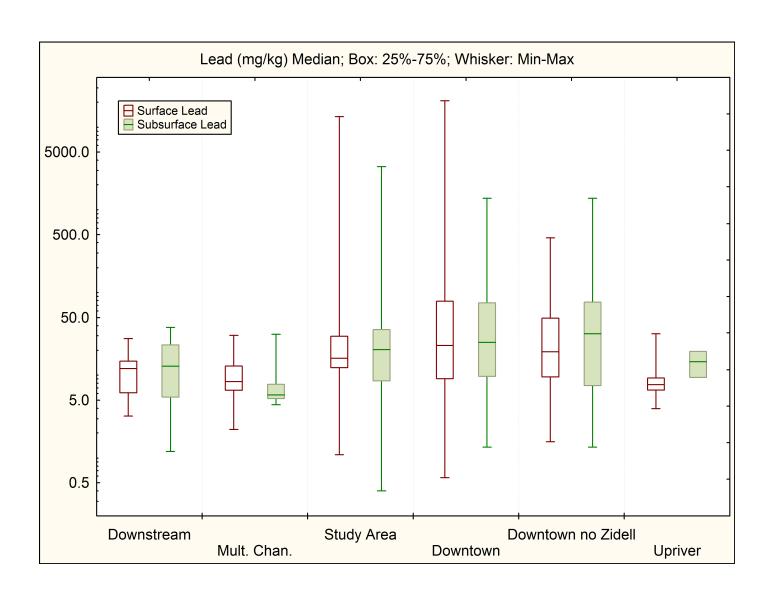


Figure D1.1–86
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Lead
Concentrations in Subsurface Sediment, RM 0.8–12.2



Figure D1.1-87
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Lead Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



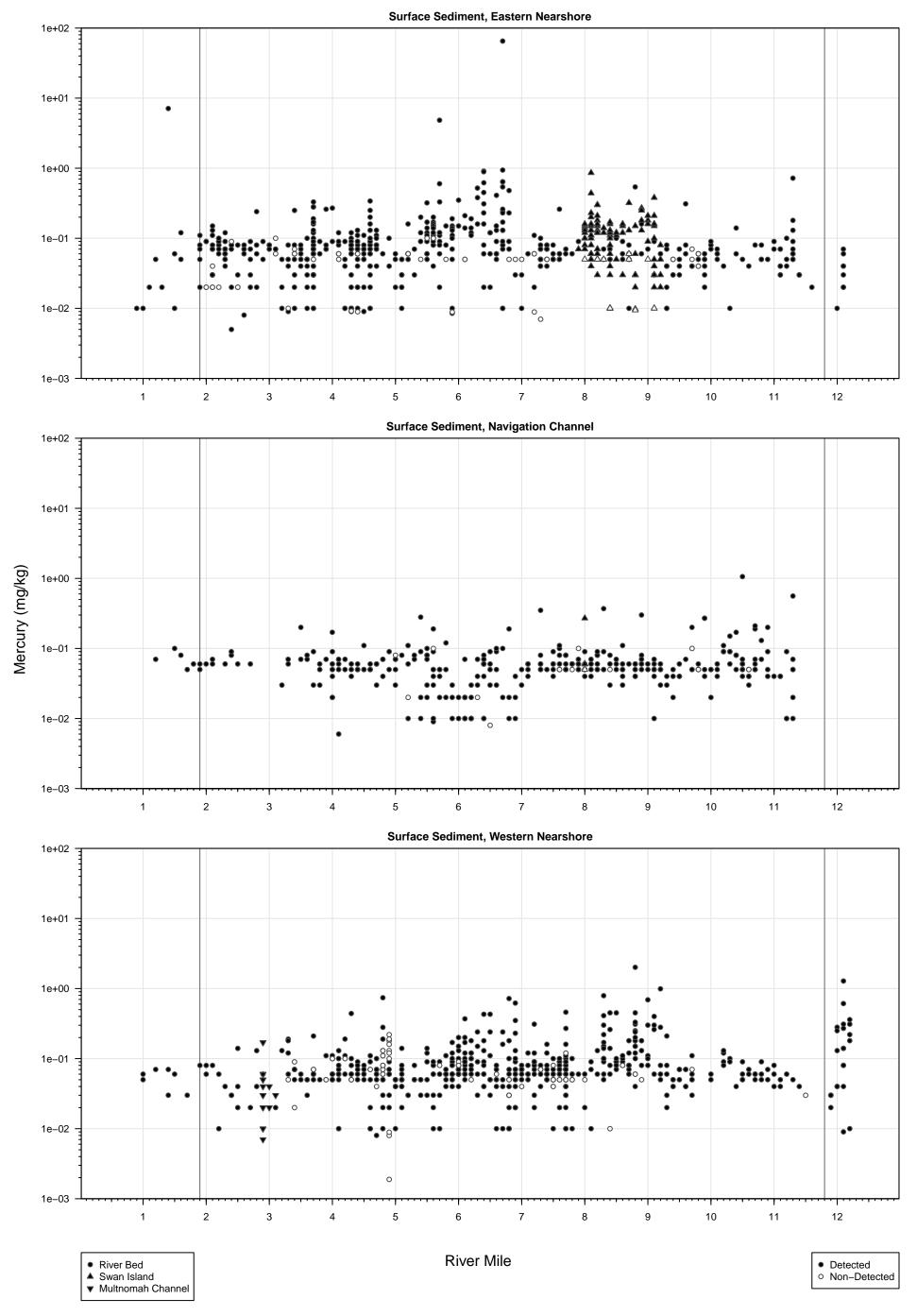


Figure D1.1–89
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Mercury
Concentrations in Surface Sediment, RM 0.8–12.2

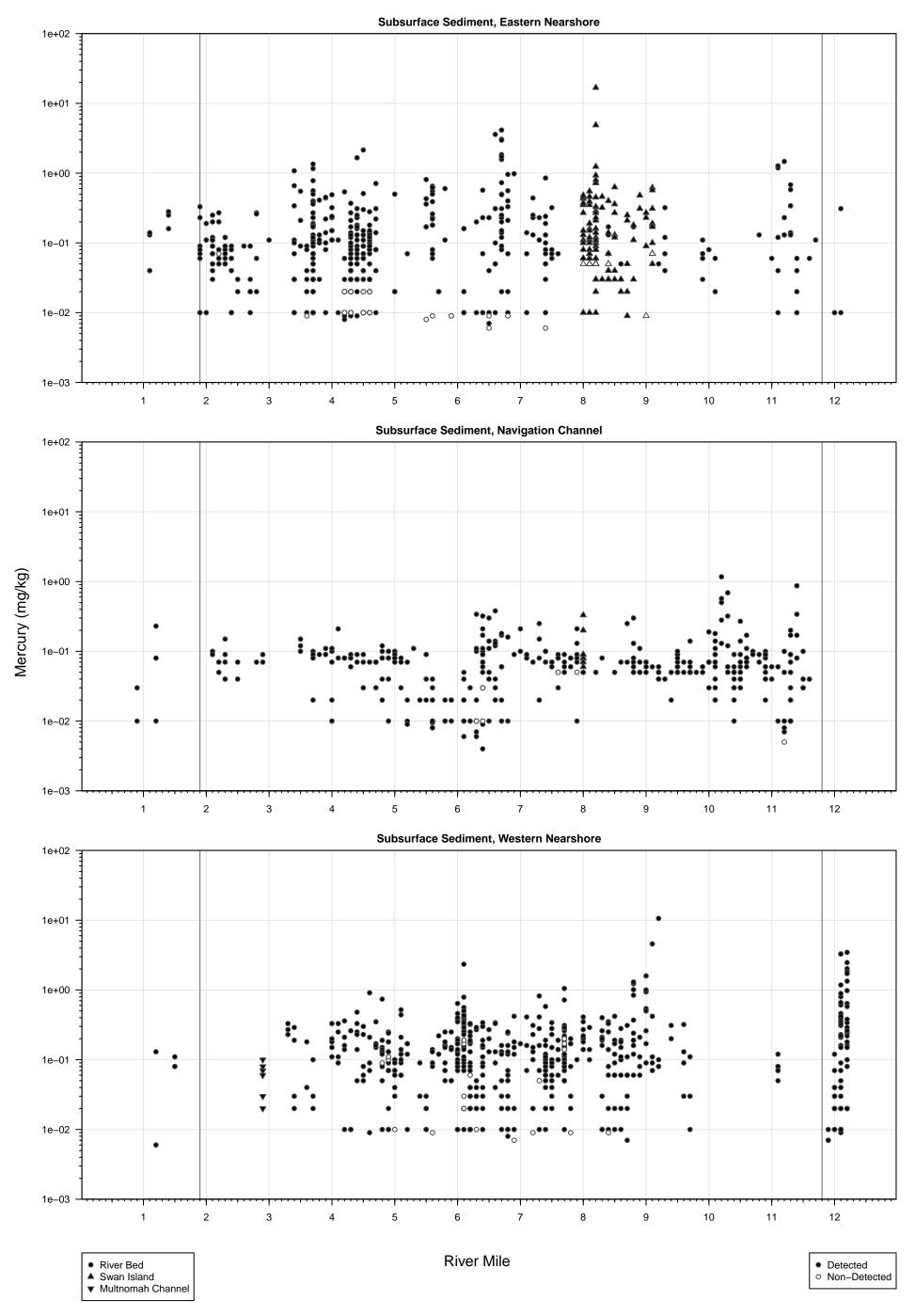


Figure D1.1–90
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Mercury
Concentrations in Subsurface Sediment, RM 0.8–12.2

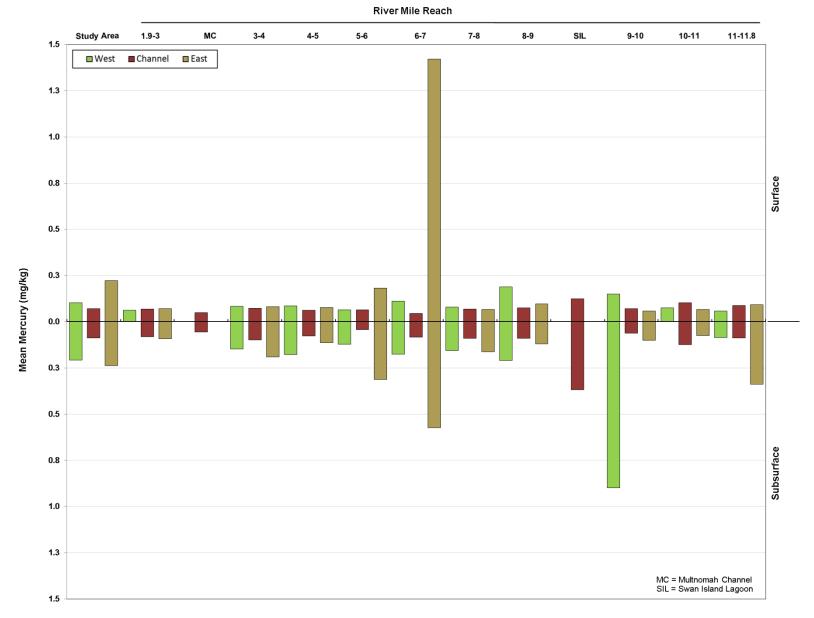
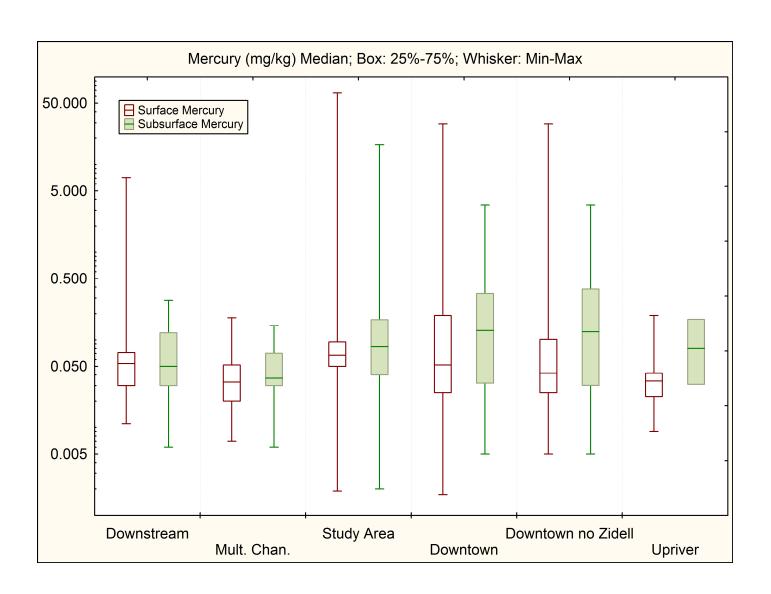


Figure D1.1-91
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Mercury Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



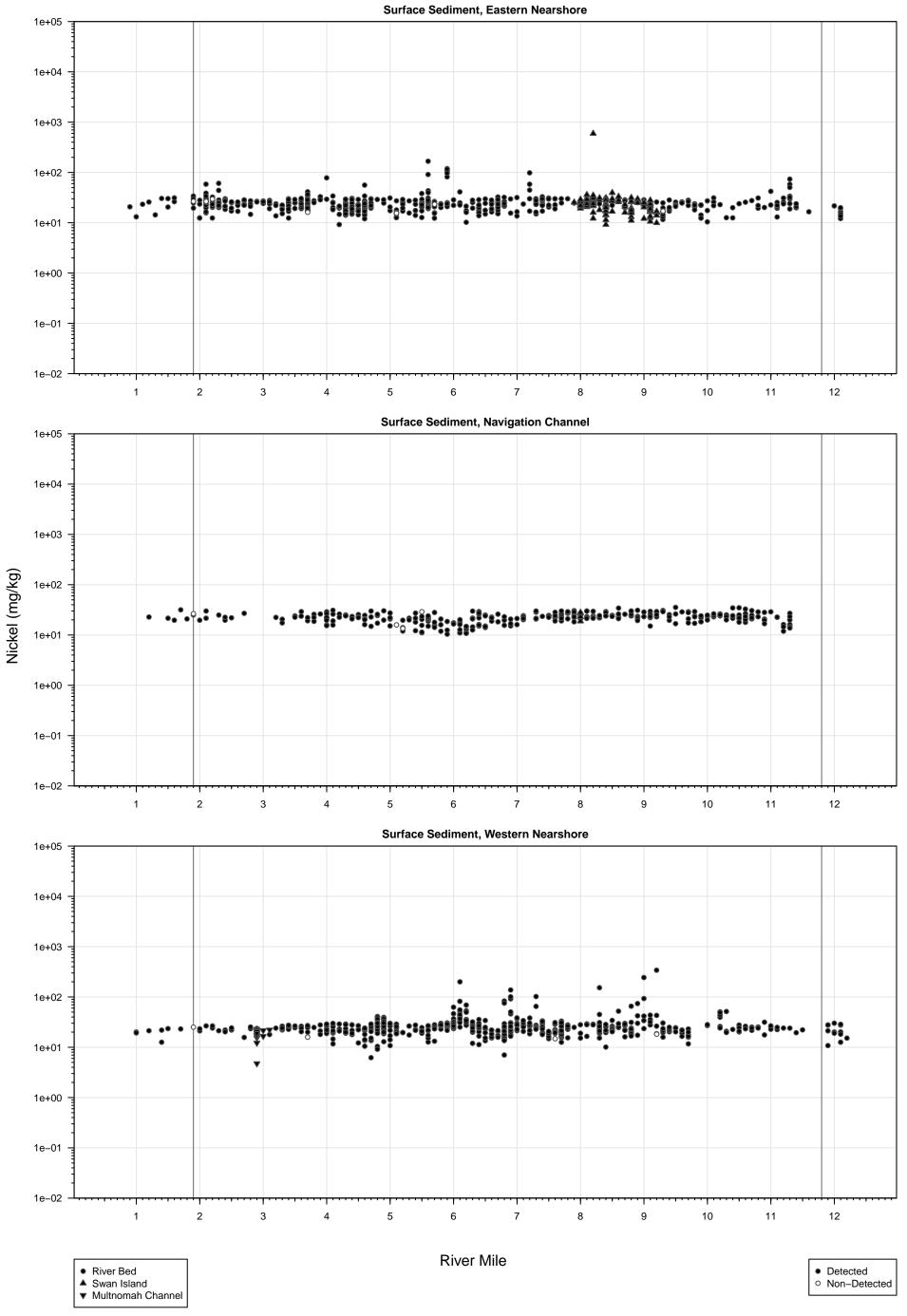


Figure D1.1–93
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Nickel
Concentrations in Surface Sediment, RM 0.8–12.2

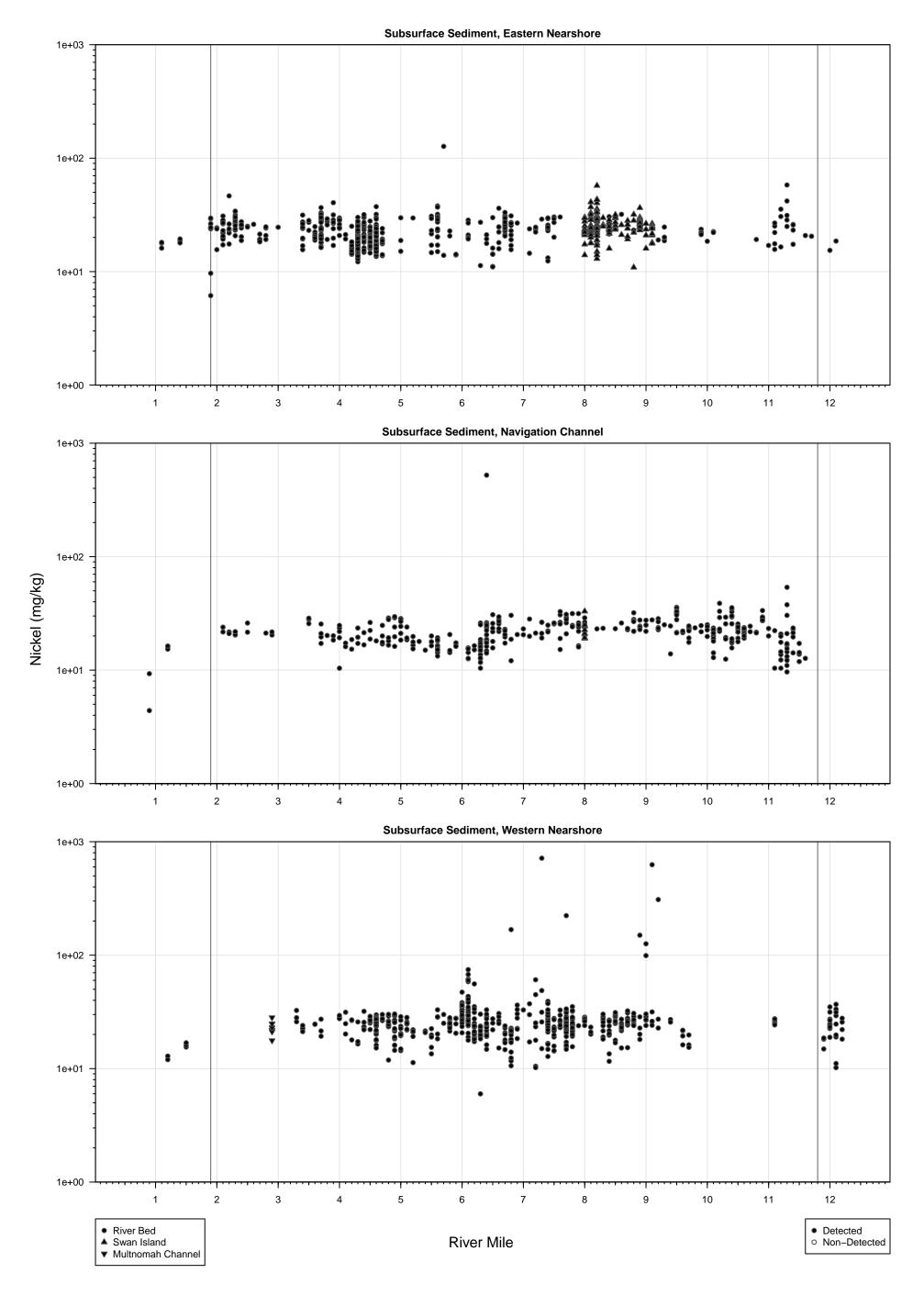


Figure D1.1–94
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Nickel
Concentrations in Subsurface Sediment, RM 0.8–12.2

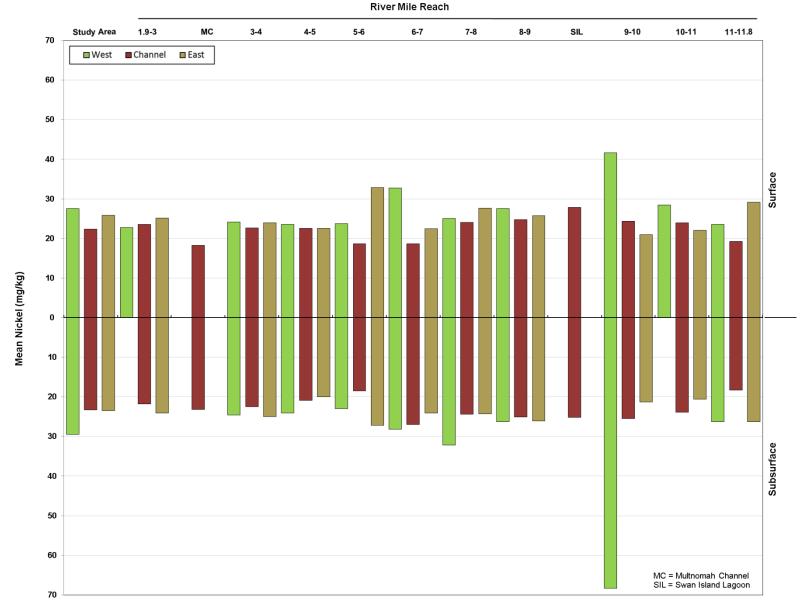
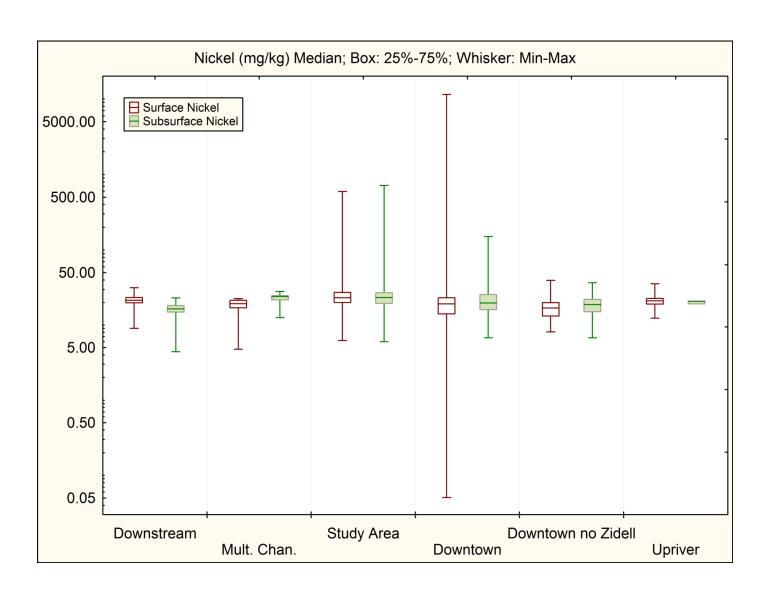


Figure D1.1-95
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Nickel Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



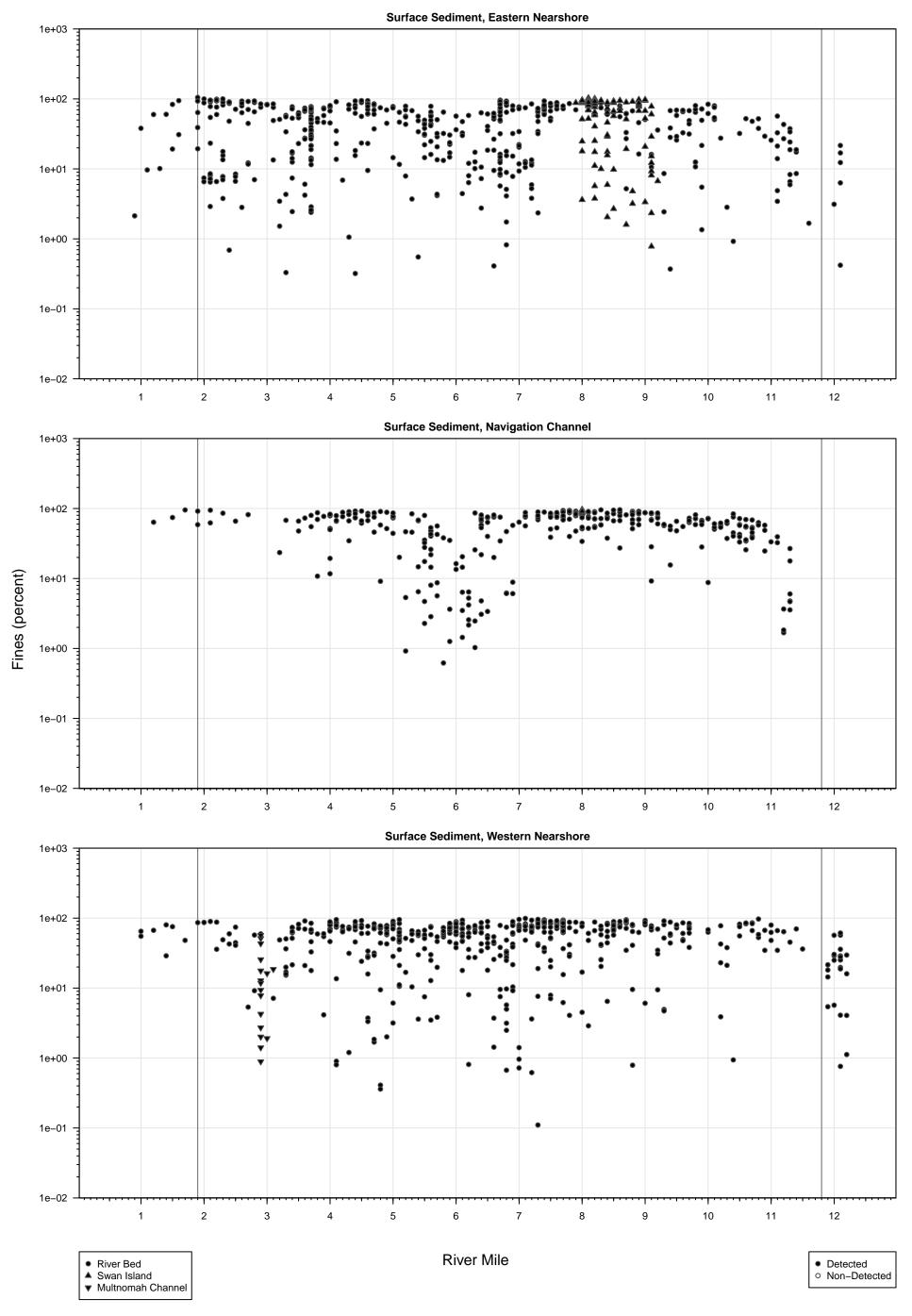


Figure D1.1–97
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Percent Fines
Concentrations in Surface Sediment, RM 0.8–12.2

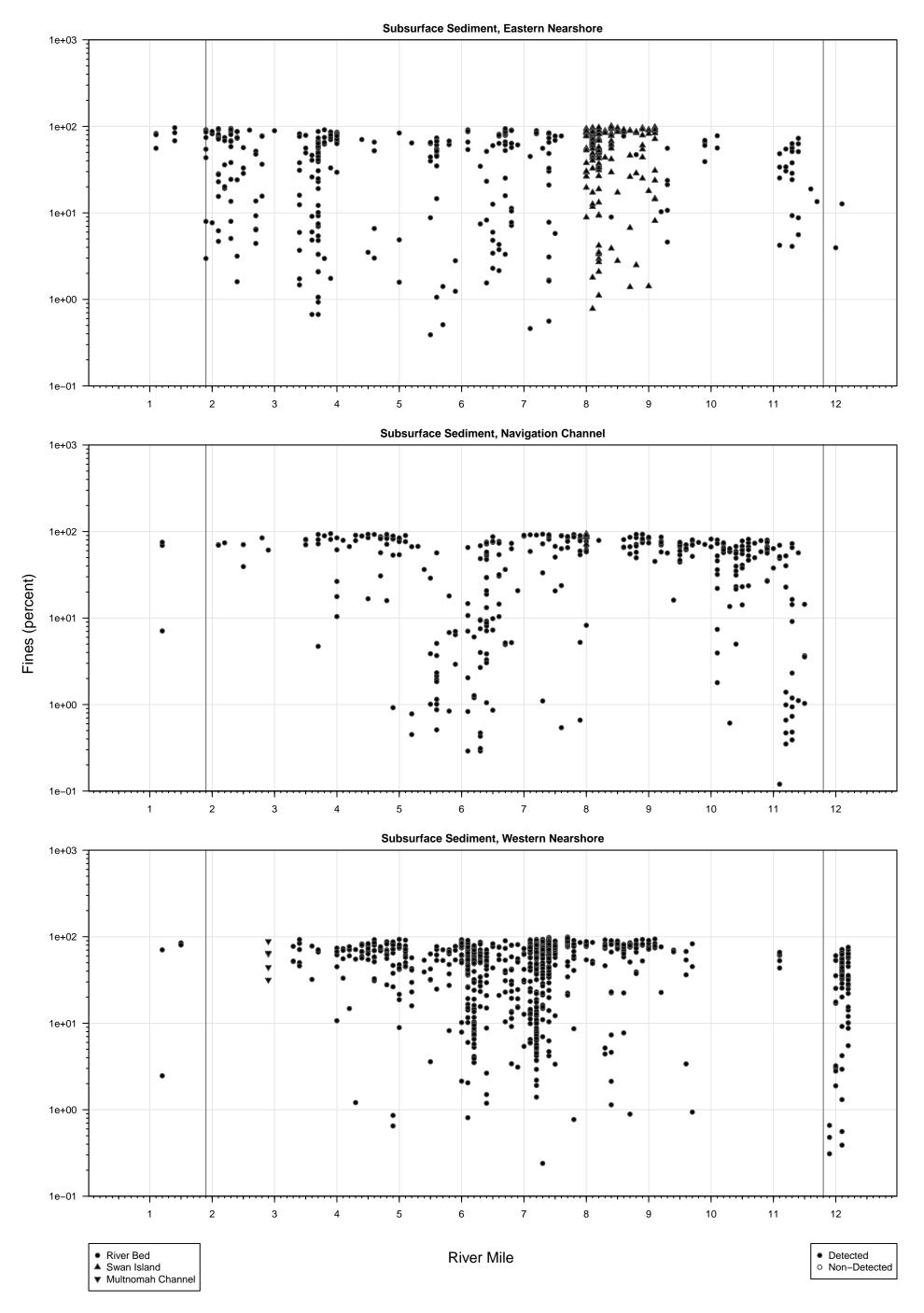


Figure D1.1–98
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Percent Fines
Concentrations in Subsurface Sediment, RM 0.8–12.2

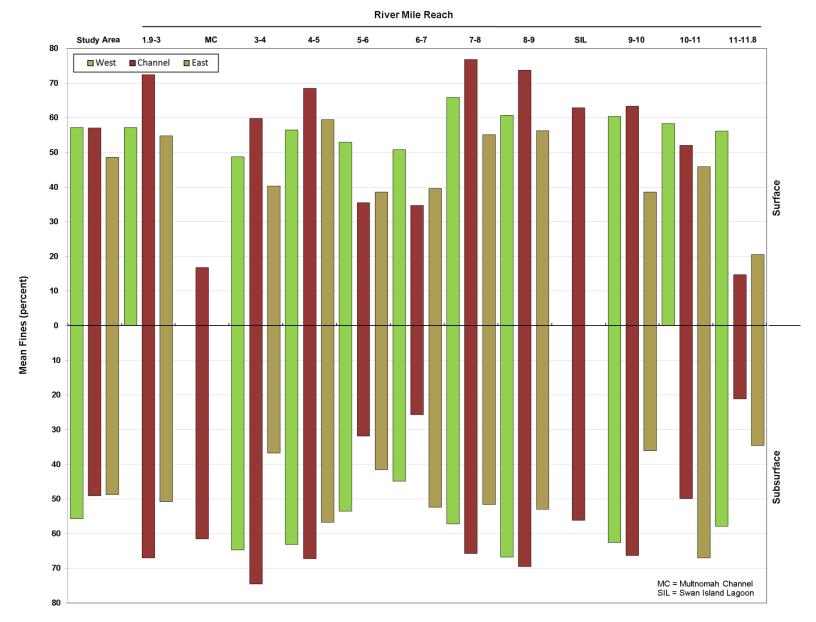
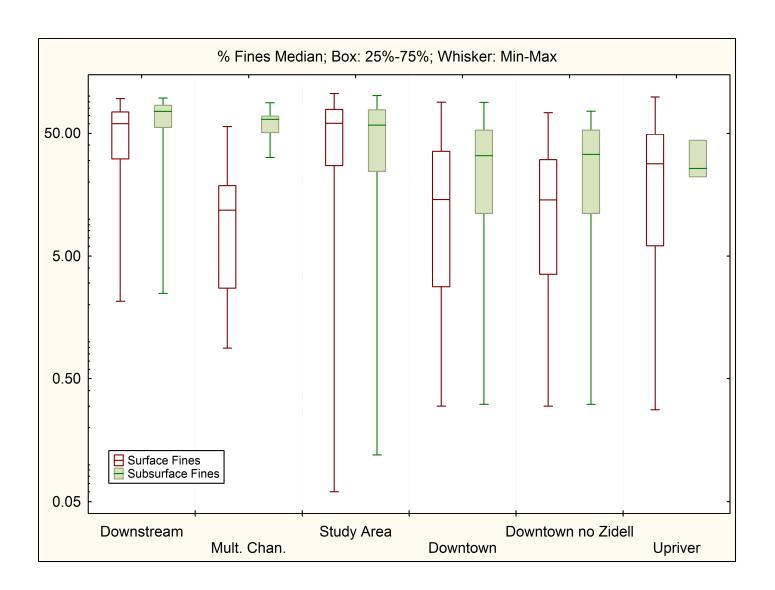


Figure D1.1-99
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Percent Fines Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)



Occasionally, small sample sizes (e.g., N<3) or data sets with multiple duplicate values can result in min/max whiskers that coincide with the upper/lower boundaries of the box plot (i.e., 25th and 75th percentiles). In these cases, no whiskers will be visible on the box plot.

Surface fines subset contains five "0%" values that were replaced with "0.06%" (minimum non-zero value observed) so that the minimum-value whisker is made visible in log space.

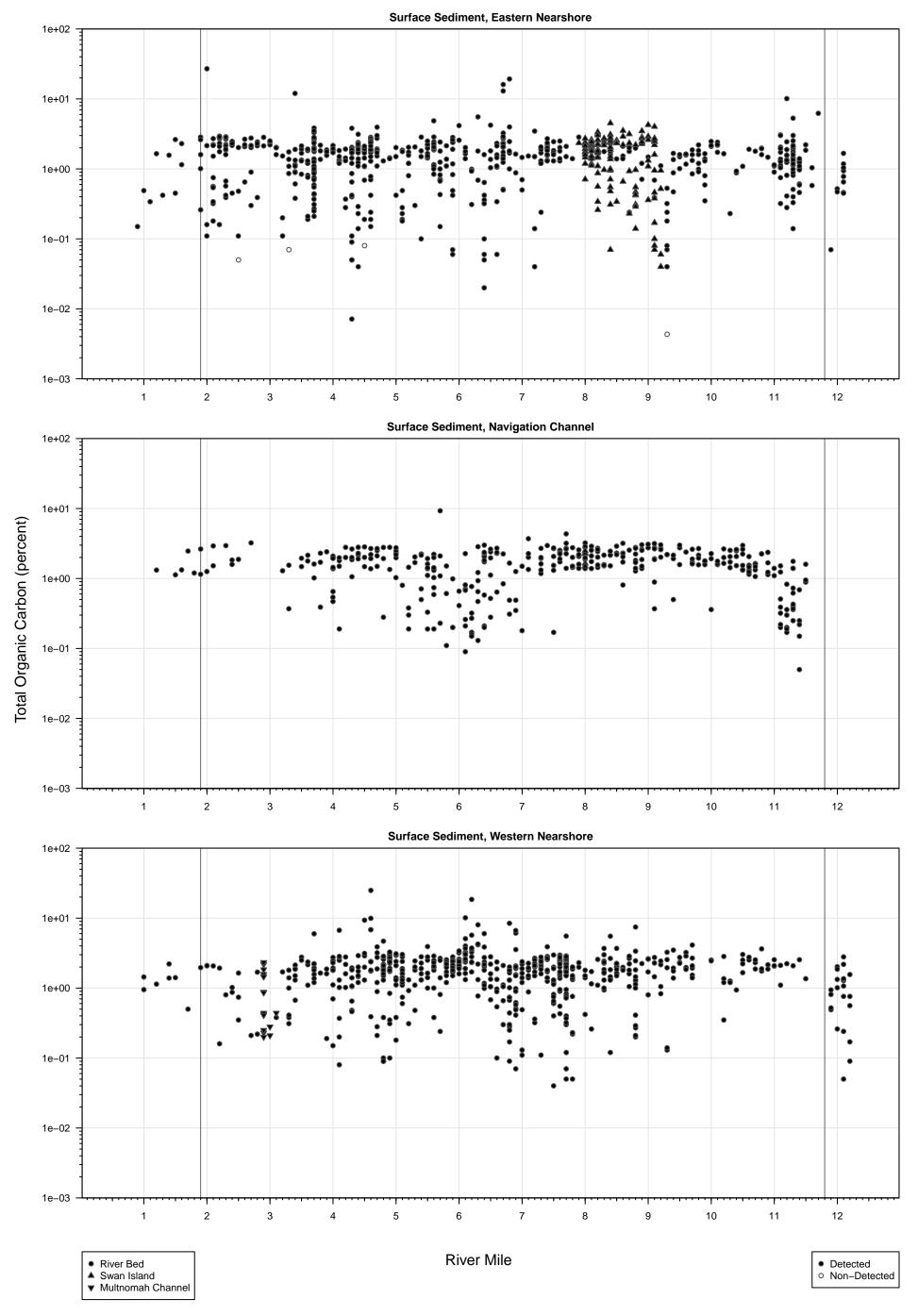


Figure D1.1–101

Portland Harbor RI/FS

Remedial Investigation Report

Scatter Plot of Total Organic Carbon

Concentrations in Surface Sediment, RM 0.8–12.2

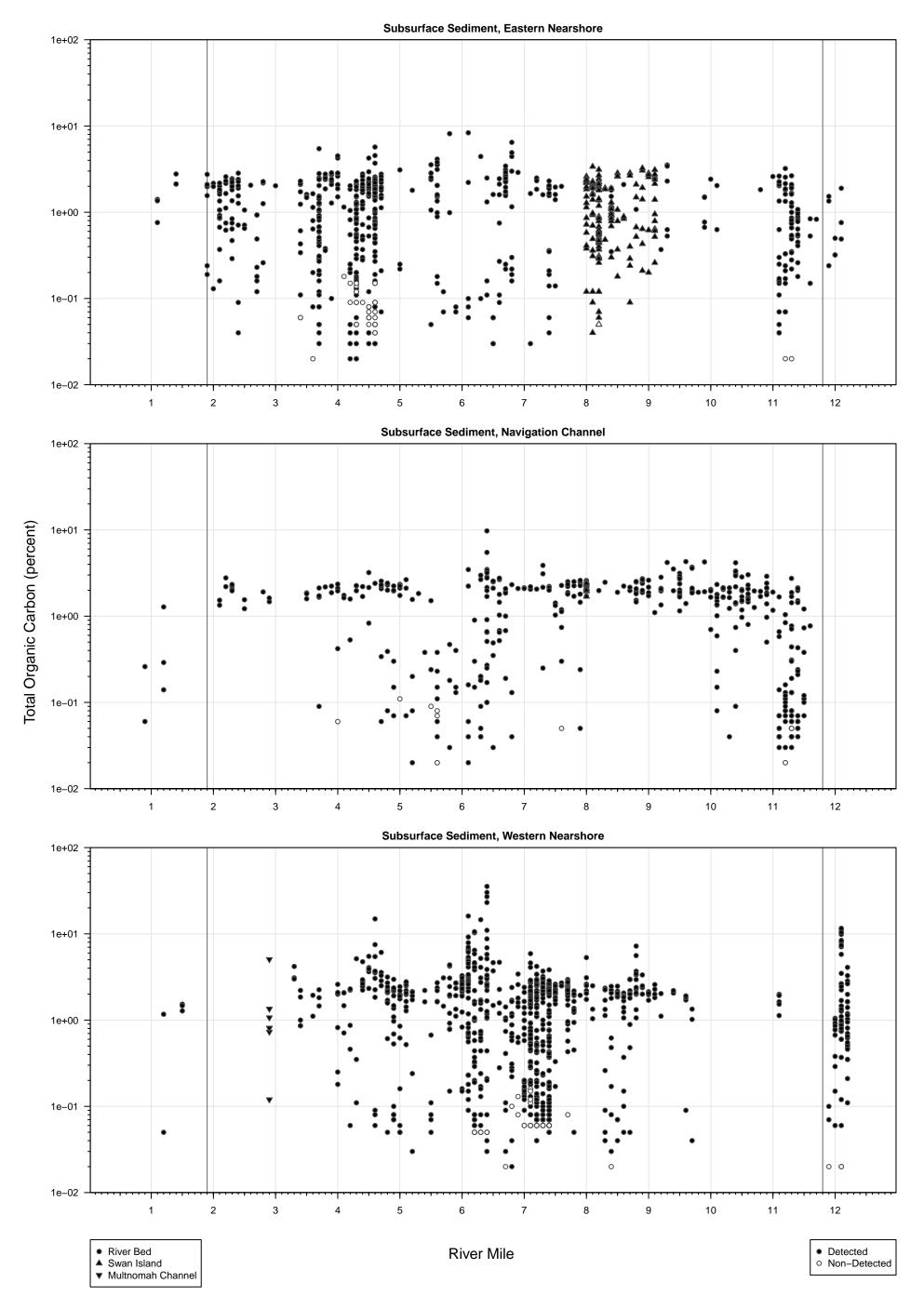


Figure D1.1–102
Portland Harbor RI/FS
Remedial Investigation Report
Scatter Plot of Total Organic Carbon
Concentrations in Subsurface Sediment, RM 0.8–12.2

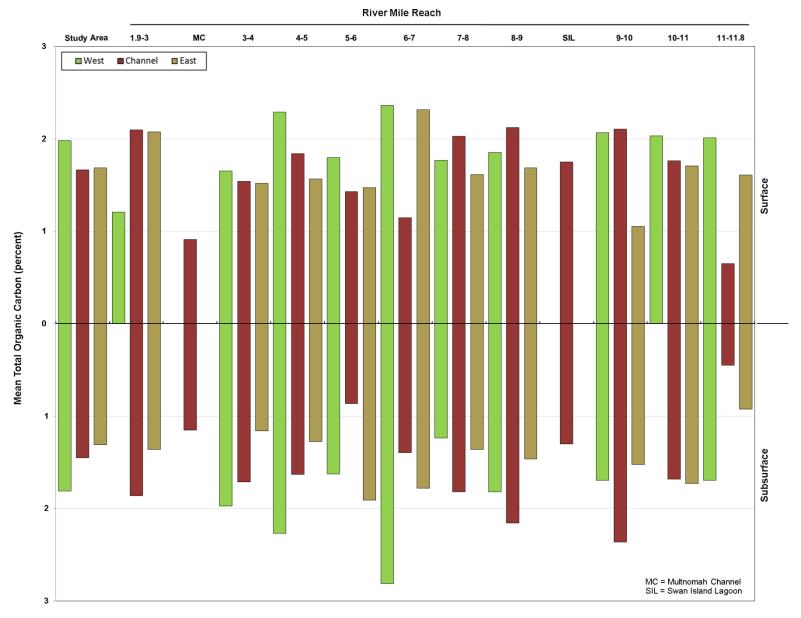


Figure D1.1-103
Portland Harbor RI/FS
Remedial Investigation Report
Histogram of Mean Total Organic Carbon Concentration
in Surface and Subsurface Sediment (RM 1.9–11.8)

